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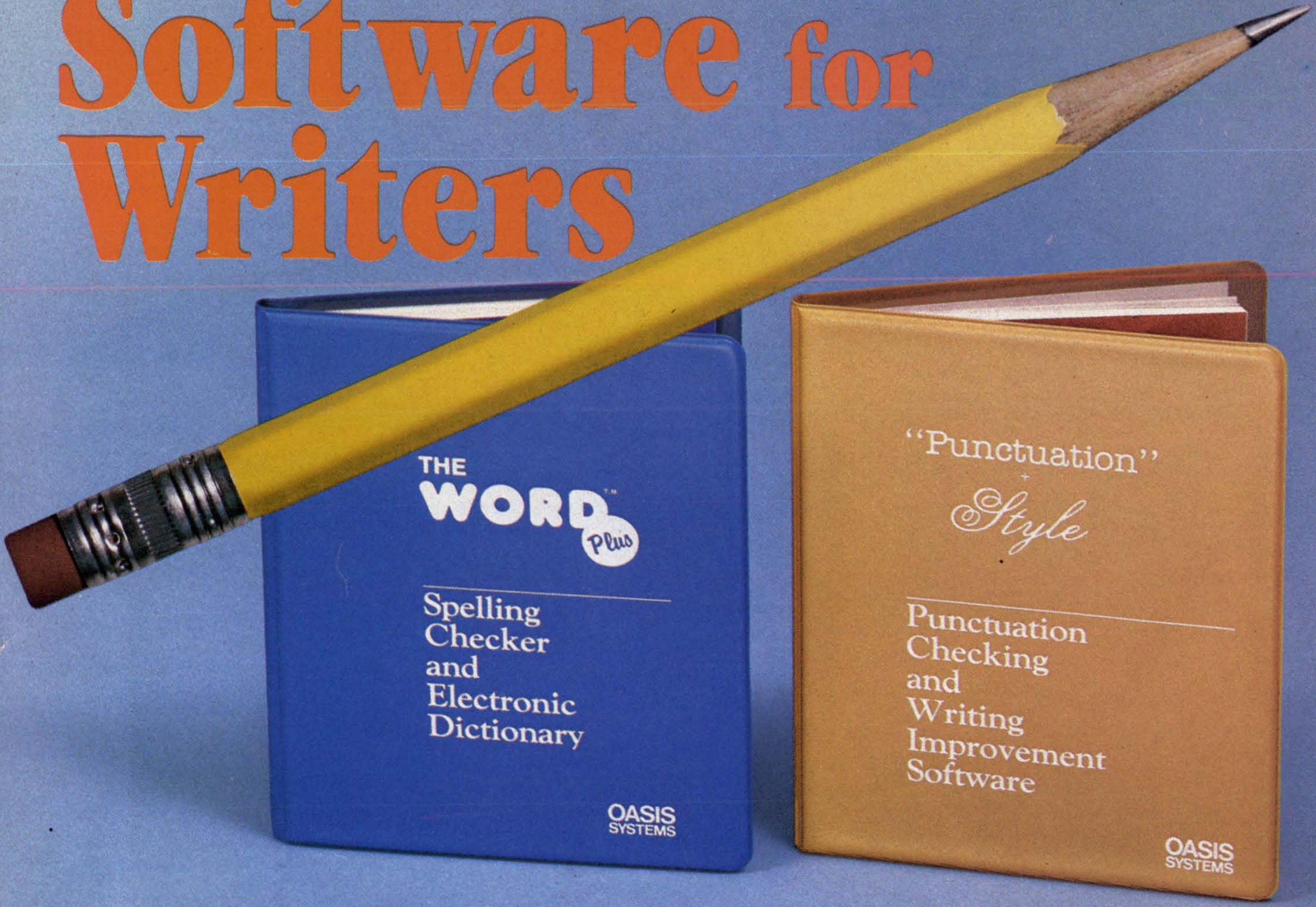
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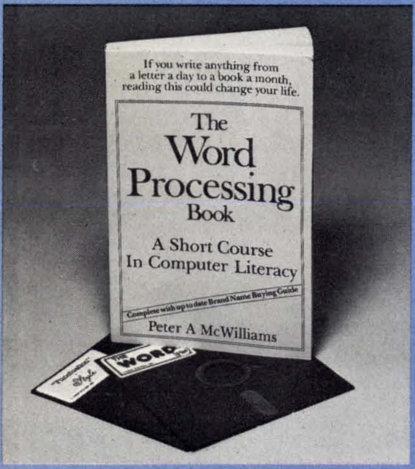
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User's Guide

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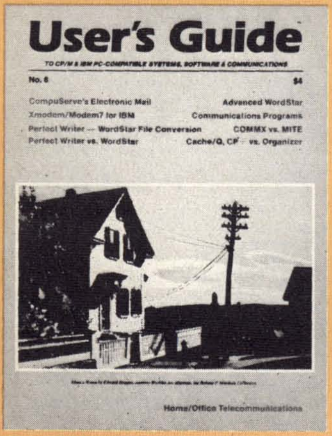
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Year-End Promise

We close the year with a "roundup" of personal computer applications, the most common among users being communications (issue theme), then word processing ("WordStar" part two, and "Wordstar vs. Perfect Writer"), then system housekeeping ("CP+ vs. Organizer") and system performance ("Cache/Q"). Data base management was covered extensively in the previous issue, and personal data management is the topic of the next issue.

Readers who have the first six issues will be happy to see that an index is being prepared for the next issue. The complete set can be compared to a training package that includes lessons on WordStar, MailMerge, SuperCalc, dBASE II, CompuServe, COMMX, MITE, Modem7, Documate Plus, Footnote, Bibliography, The Word Plus, Disk Utility, Perfect Filer, and of course, CP/M-80, CP/M-86 and CP/M Plus.

Where else can you get such a training package, at any price? If you use any of these programs, you can readily see the value of this magazine and its unique content. That's the point: we publish a magazine for users — people using computers probably every working day, possibly *every* day.

However, we must apologize for the publication and circulation delays that plagued us several months ago. As a startup magazine we were under-capitalized, and our efforts to re-capitalize were not successful, especially in the tense atmosphere caused by the computer magazine "shakeout" that was and is continuing to frighten some investors.

Some readers are concerned when their magazine is late, even though a magazine such as *User's Guide* doesn't carry time-sensitive information. We apologize for any delays, and especially for any inconvenience caused by the longer-than-usual pause in your *User's Guide* "training session."

There are no excuses for being late. There is only the reality of a tiny staff, a tiny bank account, an occasional case of the flu, a high disk drive failure rate, a devastating bug in a data base management system requiring a month of re-typing, a host of last-minute corrections, and the eleventh-hour poltergeist.

There is also the reality of a successful magazine, with faithful subscribers that renew their subscriptions with fervor and with cash, wonderful readers that remind us of our direction, pragmatic advertisers that reap the rewards of promoting their products to a highly-qualified readership, and last but certainly not least, excellent writers whose work we feel proud to publish.

The subscriber-sponsored method of financing a for-profit magazine is not supposed to work, but we are in great shape! We also look forward to our advertising rate increases that will correspond with the growth in circulation, spurred on by special promotions for more subscribers.

We use personal computers to handle fulfillment, order processing, accounting, financial projections, editorial management, editing, research, article submissions (by modem), and typesetting, in an effort to keep costs down, which is one of the surest ways to make money.

We are committed to writing for and publishing this unique magazine for the user community, because serious computer-users can't wait for software to become more "people-literate." You must learn how to do it now, and this is the only magazine that provides such information. As a subscriber-supported magazine we urge you to take advantage of this training package for $18 a year. We promise to provide useful information, and hopefully, we'll also be on time with it.

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Communications

How to decide between communication programs.

by Tony Bove & Cheryl Rhodes

Communications between computers can be the most complicated technical situation a personal computer owner is likely to encounter. Nevertheless, the ability to communicate is the key to using the new services offered in the information age.

Most computers have at least two *output ports* — cable ports that let you connect devices to your system. The two most prevalent types are *serial* and *parallel* ports. The parallel port is usually reserved for the printer, and the serial ports are used for the display/keyboard unit (if separate) and other devices such as a printer (if you have no parallel port) or a modem. Ports are described in more detail by Steve Rosenthal in his article "Making Connections."

Modems are devices that let you connect your computer to a telephone line to send and receive data. The telephone line allows for two-way, or *full duplex* communication. These terms and many others are described in a short glossary in this issue.

With a computer, a modem, and a *communications program*, you can use your personal computer to communicate with another computer system such as an associate's computer, an office computer, an information service like CompuServe or The Source, or a communications service like Telex.

Why would you want to use a computer to communicate with other computers? Information stored in electronic form can be moved and duplicated quickly. You want to take advantage of electronic storage and retrieval techniques to send and receive messages instantly, tap into giant data bases with ease, get the latest financial news, weather, sports... The possibilities are endless.

As a professional writer or researcher, you would find the research services (such as Dialog) indispensable for writing. Reporters use the wire services for news, and anyone can connect with wire services from a home computer using a modem and the appropriate communications program.

Computerists "network" with each other to satisfy professional curiosities and for the fun of doing it. Newcomers to computing also find the services (such as CompuServe or The Source) helpful in providing applications-oriented information.

Business people find the financial services offered on Dow Jones, The Source, and CompuServe to be very useful in gathering information on stocks and commodities. Orders can even be placed through brokers using these systems.

If you run a business in an office, you may have a need to use more than one computer in a configuration that lets them share data. We use one portable computer for the entry of names and addresses for our subscription list, and another computer for the processing of that list. The two computers are connected by cable, and a communications program controls the transfer of data between computers.

On a larger scale, an office could have several computers using the same data. The term *local area network* (LAN) is used to describe such a setup. The sharing of data is provided for with one computer acting as a *file server* and each workstation computer accesses the file server as another "disk drive" on the workstation.

One reason for getting into communications now is to be there when future services arrive, such as nationwide electronic banking and electronic mail. This issue's feature on CompuServe's electronic mail shows how far this service has come.

How To Decide Which Program

The major decision to make (in addition to what personal computer to buy, what modem to buy, or what additional equipment to buy for a local area network) is what communications software to use. Your decision-making process should start with your immediate communications needs. Do you need to communicate with any specific mainframe or mini-computer system? If so, find out first which *protocols* are available for sending data to and receiving data from that system.

There are basically two ways to transmit or receive data: without error-checking, and *with* error-checking. Simple protocols (such as XON/X-OFF) allow you to send or receive data without error checking. "Higher-level" protocols (such as the Xmodem/Modem7 protocol commonly used on CP/M computers) let you send or receive blocks of data with error checking. The contents of each block received is compared to what was sent and if the blocks do not match (usually a result of some noise on the phone line), the block is sent again until a correct version is received.

We can't possibly describe every type of transmission link-up possible with CP/M systems, but the most prevalent are:

- CP/M system to CP/M system, using Modem7 on each computer or similar program that allows file transfers with error-checking.
- CP/M system to host computer such as CompuServe, where the CP/M system is in terminal mode using the XON/XOFF protocol. Data can be sent back and forth but without error checking.
- CP/M system to any other personal computer, where both computers are running modem programs. One computer is in terminal mode, the other in "conversational" (also called "half duplex") mode.

You need a communications program that can handle at least these three situations. Fortunately most programs do. In fact, most commercial packages provide protocols for connecting with large computer systems such as the Hewlett-Packard 3000, IBM TSO systems, DEC VAX and PDP-series computers, Data General, Control Data, Burroughs and many others.

Given the fact that you have found at least two communications programs that can handle the protocols you need: how do you decide which communications program to buy? You must look at the *ways* in which certain functions are handled, and what features are provided.

How do you compare two programs that perform the same task as required, but whose features and idiosyncrasies

Continued on page 20

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CompuServe Communications

File Transfers and Public Access

From Private File Transfers to Electronic Publishing: Placing Orders, Conducting Research, Taking Courses, Sending Memos, Writing Book Chapters, Submitting Articles, Regular Correspondence, Special Projects... Moving Information.

by Tony Bove & Cheryl Rhodes

File transfers between users will probably increase as more subscribers become aware of the usefulness of this form of communication. It will also undoubtedly become easier, but you need instructions on how to do it now.

You can hold up to 125,000 characters of information in your CompuServe file storage area. Messages less than 4000 characters are easily transferred using the Electronic Mail facility (see accompanying article), but larger file transfers involving text files and programs are accommodated with:

- the file storage area, with
- FILGE and other text editing programs running in CompuServe's programming area, and/or
- the Public Access Area and its commands.

For routine and immediate file transfers to others, you would probably allow direct copying from your storage area.

Although there are no elaborate security mechanisms, a user cannot copy a file from your storage area unless you allow it by lowering the *protection level*. You can lower the protection level for a specific file and for your storage area so that any subscriber who knows your ID number can retrieve the file.

To transfer the file from your personal computer to your storage area on CompuServe, use FILGE or the ICS text editors. You can also use them to create as well as receive files into the storage area.

For a description of FILGE, see the accompanying article on electronic mail (FILGE is also used with EMAIL). This article provides details of the file storage area, the file commands and the Public Access Area.

For non-routine transfers, CompuServe's Public Access Area may be easier to use; however, files do not become available until up to 24 hours after you submit them.

You can store a file in the Public Access Area for everyone to read, or make it "invisible" so that only those who know the filename can read it. This method may be more secure, because you can keep your file storage area protected at the highest level and still make one or more files available to people who know the names of the files.

Transfer Files Into Your File Storage Area

To transfer a file to your personal storage area, go to the Personal Computing Service menu with this command from any menu:

```
G PCS⏎
```

The Personal Computing Service menu lets you select from the following choices:

```
CompuServe                              Page PCS-1
PERSONAL COMPUTING SERVICES
```

Continued on page 13

Information moves quietly at the speed of light, over a carrier network that covers the globe.

Electronic Mail

Writing and uploading messages, reading and downloading mail.
Instant delivery with EMAIL!

```
User ID: 70105,722⏎
Password:

CompuServe Information Service
18:41 PST Tuesday 01-Nov-83

You have EMAIL waiting.

CompuServe                              Page EMA-1

   Electronic Mail Main Menu

1   Read mail
2   Compose and send mail
```

Throughout this article we use *THIS typeface* to show what you should type at your keyboard, with the special symbols ↑ for the Control key (CTRL, CNTL or ALT on some keyboards), and ⏎ for the RETURN key (RETURN, ENTER, CR or Carriage Return on some keyboards). We also mention use of the ESCape (ESC) key, the TAB key, the SHIFT key, the Backspace key (BS or left arrow on some keyboards) and the DELete key (DEL, RUB or RUBOUT on some keyboards). This Typeface is used to show messages displayed by the CompuServe system or by other programs.

Since computer activities nearly always involve typing, you'll see *THIS TYPEFACE* used a lot, especially in all upper case letters (used for most commands). You may not have to type in upper case — we use it to emphasize commands. We also use *lower case* for text in text files and for text that varies with the specific command. For example, *G data base⏎* tells you to type the *G* command with any data base name, and press RETURN.

We think the use of special typefaces and symbols helps to explain how to type commands and data at the keyboard in a smooth, consistent manner. We welcome any and all suggestions on how to improve on this.

You have an electronic letter waiting for you in your mailbox area of H&R Block's CompuServe Information Service.

Information moves quietly at the speed of light, over a carrier network that covers the globe, linking people who are operating personal computers and terminals on large computers in constant two-way communication.

The two-way digital communication services like CompuServe and The Source are called *videotex*services. As the personal computer industry produces equipment that can make use of videotex services, the services are improving and are actually useful to "business and professional" (i.e., non-technical) computer users.

The most promising aspect of the information age is electronic mail — the ability to send and receive text messages over cable or phone networks. CompuServe's EMAIL facility lets personal computer users with modems send or receive messages and store them at each location. CompuServe phone numbers are everywhere in the continental U.S.; from nearly any location, the call is a local one. What is more, the message is sent *instantly* and stored by CompuServe for easy retrieval.

There are an infinite number of possible applications. Business and professional people can pass messages to each other instantly and privately but without telephone interruptions. Doctors can send reports privately to patients, clients can communicate with their lawyers, freelance writers can submit text to editors, etc.

There are limits, of course. EMAIL will not handle messages longer than 4000 characters (approximately 48 lines, assuming an 80-character line). Longer messages have to be broken into parts for transmission, and received in parts. There is another facility for transferring or typing larger text files, described in the accompanying article "File Transfer and Public Access."

CompuServe, owned by H&R Block, has the largest number of individual subscribers (70,000), and The Source, owned by Reader's Digest, is the second largest. Both services cater to personal computer users, and both have electronic mail, bulletin boards, special interest groups, and an interactive "talk" or "chat" system similar to CompuServe's CB.

This article describes CompuServe's electronic mail. Future articles will cover bulletin boards, special interest groups, and the private "talk" mode and other CB features for tele-conferencing.

Reading Your Mail

When you log onto CompuServe, the system automatically tells you if you have mail waiting for you. For mail to be available to you, it must have been sent to your "address" — your user ID number. If you have mail, CompuServe asks if you want to go directly to the EMAIL facility. Type a "Y" for yes, and you're there.

If you don't have mail, you can go to the EMAIL facility directly by typing *G EMA*↩, or through the communications menu, reachable through Home Services, Business & Financial Services, and the Personal Computing Service.

The EMAIL program gives you two options: read mail and compose/send mail. Select the read mail option, and EMAIL displays the following text if you have mail (to move directly from other menus to read your mail, type *G EMA-3*↩ and you'll see something like this if you have mail):

```
CompuServe                              Page EMA-3

     1  Don Lloyd/HI FRIEND
     2  Tony Bove & Cheryl Rhodes/TEST OF EMAIL

Last menu page. Key digit
or M for previous menu.
```

This example shows two letters — the first is from a friend, Don Lloyd, and the message summary is HI FRIEND; the second was sent from us to ourselves in a test of the EMAIL facility.

You may want to keep a "log" of the session, to save the text of the letter on your computer's disk. Before reading the letter, set up your communications program to save all text that appears on the screen — usually called "logging" or "auditing" the session.

When you have several letters, you can select which ones to read. When you select one, you are told the date of the letter, and you are given the sender's identification number (for you to use in reply), followed by the text of the letter:

```
CompuServe                              Page EMA-5
29-Oct-83 13:48 Fr [70105,722]

(Text of letter follows.)
```

After reading the letter, press RETURN, and CompuServe provides a menu of choices:

```
CompuServe                              Page EMA-5.

 1  File this message, then
    delete from mailbox
 2  Delete from mailbox
 3  Display the message again

Enter your selection number, or H for more information.
```

You can file messages in an area of CompuServe's disk space. You have at least 128K (128,000 characters, or 32 4000-character messages) in the file storage area. Each message file is stored for at least thirty days before getting purged. If you copy, read or edit a file once every thirty days, the file should not be purged.

Why would you store the message? If you are not prepared to save the message in your personal computer's memory and on disk, you could save it in a CompuServe file and download the file later.

CompuServe's file storage area is not meant for permanent storage of your computer files. The reason you own a personal computer is to store such files in your own computer. We use the area as a temporary holding space for transferring files from one CompuServe user to another. For a description of file storage see "File Transfers and Public Access."

When you select the option to store the message, you also type its filename:

```
CompuServe                              Page EMA-9

Name the output file, ? for help
or <ENTER> to delete message.
:TEST↩

Message filed in DSK:TEST
and deleted from your mailbox.
```

Filenames can be up to six characters plus a period preceding an extra optional three-character extension. The first character must be alphabetic, and the rest can be alphanumeric. Press RETURN to enter the filename.

You can add a message to an existing file, saving space and minimizing filenames, by appending */A* to an existing file's name. If you want to replace an existing file, type its name followed by */R*. Here's an example of adding a message to an existing file:

```
:OCTMSG/A↩
```

The file OCTMSG already exists in our file storage area, and we append this message to it.

If you press RETURN by itself, you can delete the message. CompuServe asks to confirm the deletion, and you can type *Y* for yes or *N* for no:

```
Delete this message? (Y or N): Y↩
```

You should delete the message if you've saved it elsewhere; otherwise, CompuServe will say you have mail every time you log on.

You can store messages in your file space for at least one month. After thirty days, the message will disappear if you don't read it.

Looking Up Addresses

To send a message to a CompuServe subscriber, you must first know the subscriber's *address* — the ID number. The User Directory entry in the Communications menu takes you to the following menu:

```
CompuServe                              Page HOM-4

SUBSCRIBER DIRECTORY
1  Explanation
2  Search by Category
3  Enter Your Information
4  Change Your Current Info
5  Delete Your Current Info
```

You can search this directory by name, by interest area, by location, and even by type of personal computer:

```
1  User ID number
2  Name
3  City
4  Interests
5  Computer Brand/Model
```

Subscribers volunteer the information for this directory, so not all subscribers will be listed. You can enter your own information by responding to prompts, and you can change or delete your information whenever you want. You will be asked to enter your ID number, name, city, computer brand/model and personal interests.

Sending Mail

To send mail, select the compose-and-send-mail option from the EMAIL main menu (to move directly from other menus to the compose-and-send menu, type *G EMA-4↩*). This menu has several choices:

```
CompuServe                              Page EMA-4


CREATE a new message in your
temporary workspace using:
    1 FILGE editor
    2 ICS editor
    3 File from disk space

EDIT message in workspace using:
    4 FILGE editor
    5 ICS editor

    6 SEND message from workspace
    7 Information on FILGE
    8 Information on ICS

Last menu page. Key digit
or M for previous menu.
```

Messages are "created" in the workspace. Your message could already be written and stored on the CompuServe system in your file storage area, in which case you need only select the "file from disk space" option and provide the name of the file. (File storage is described in "File Transfers" accompanying this article.)

Once the message is in the workspace, you can edit it and send it. You should also keep a copy of the letter on your disk, or in CompuServe's file storage area.

If you compose messages on your own computer, use the FILGE editor to transfer them (one at a time) into the EMAIL workspace. This is called *uploading* from your computer. You can use the ICS editor to transfer messages if each line of the message starts with a number (not the usual method, but useful for transferring small BASIC programs).

Messages cannot be larger than 4000 characters (48 lines assuming eighty-character lines). We usually type messages using WordStar on our personal computers, and upload them. Our longest messages are 2.5 pages (document mode, 65 characters per line).

FILGE (which stands for FILe Generator and Editor) is not the easiest editor to learn how to use. By composing your message on your computer first (before calling CompuServe), you only need to know how to exit FILGE with the */EX* command to transfer your message to the workspace. However, it is helpful to know how to use FILGE in order to make last-minute changes or to display sections of the message before sending it.

NOTE

One thing you *must* know about FILGE: the slash (/), if used as the first character in a line, causes FILGE to interpret the next character as part of a FILGE command rather than the text of your message. Check your message before uploading via FILGE to be sure that no lines start with a slash.

In With FILGE

This unpleasant-sounding program is the only one available for transferring text into the EMAIL workspace or into a disk file in the file storage area. (You can use ICS if every line starts with a line number.)

To transfer a message into the workspace using FILGE, select the edit-with-FILGE option, which displays the message:

```
New file Z99EMA.TMP created - ready
```

A blank workspace is now ready for your typing. But rather than type a message, you want to send text to the computer *as if* it were being typed. The advantage here is that the computer can send the text at speeds of 300 or 1200 baud, both of which are faster than you could possibly type.

Set your communications program to transfer the text. FILGE can accept lines of any length up to 200 characters per line. Start the send operation, and watch your screen to see if the text appears in your workspace. If it doesn't, something is wrong and you should check your communication line.

NOTE

You should display the text in the workspace after transferring it, unless you are sure that all the text "made it" into the workspace. Sometimes text is "dropped" because the communication line isn't functioning properly, or the phone lines have too much noise, or the communications protocols or parameters you are using do not work properly with CompuServe.

When the last line appears, the text has been transferred. To display all text in the workspace, type the following two commands (*/TCNT* and */Pn*), each at the start of a blank line:

```
/TCNT↵                    (This command tells you
[nn lines]                     the number of lines.)
/Pn↵                           (Use number for n)
```

The */TCNT* starts the display at the beginning beginning of the file, and displays the number of lines in the file. The */Pn* command displays *n* lines.

When you are satisfied that the text has made it to the workspace, you can exit FILGE by typing at the beginning of a line:

```
/EX↵
```

If your message is too long, you are told that the maximum is 4000 characters and you are left in the workspace to use FILGE commands to edit the text. See the next section for FILGE editing commands.

If your message is not too long, you arrive at the menu again. Select item 6 to send the message from the workspace. The following appears:

```
CompuServe                                    Page EMA-8

Key ⟨ENTER⟩ to leave; ? for help

Send to User ID
:
```

User ID numbers consist of two numbers separated by a comma. Type the ID number of the person to receive the letter, and press RETURN. Then type subject keywords to identify or summarize the letter and press RETURN (press RETURN only to leave blank if you wish). Type your name and press RETURN, then confirm what you typed by typing a *Y* and RETURN; however, if you made a mistake, type *N* and press RETURN to go back to the user ID question:

```
Send to User ID
70105,722↵
Subject (32 characters max)
:TEST OF EMAIL↵
Your name (32 characters max)
:Tony Bove & Cheryl Rhodes↵
Is this correct? (Y or N): Y↵

Message awaiting delivery.
```

The addressee is notified of the letter the moment she or he logs on. Try sending a message to yourself, then log off and log on again, and read your message.

Quick FILGE Summary

/A/text	Adds text to end of current line.
/ACOPYn	Copies *n* lines to end of buffer.
/AMOVEn	Moves *n* lines to end of buffer.
/B	Moves to last line of file.
/BNAME filename.typ	Defines or un-defines a buffer file.
/C/old/new	Changes *old* to *new* on current line.
/C	Repeat previous change on current line.
/Cn/old/new	Changes *n*th occurrence of *old* to *new.*
/Dn	Deletes *n* lines starting with current line.
/EX	Closes file and stores it.
/EXCNT	Same as */EX* with number of lines displayed.
/GC/old/new	Changes *old* to *new* from current line to file end.
/GCn/old/new	Same as */GC*, changing *n*th occurrence of *old* in each line to *new.*
/I/line	Inserts *line* following the current line.
/L/text	Finds first line containing *text*
/MERGEn	Merge next *n* lines with current line.
/Nn	Moves up (negative *n*) or down (positive *n*) lines.
/Pn	Displays *n* lines.
/R/line	Replaces current line with *line.*

/RESET
Restores as it was last saved.
/T Moves above first line, saving all changes.
/TCNT
Same as */T* with number of lines displayed.
/UNC Un-does last change command.
/W Displays line number of current line.

FILGE Example

You type a FILGE command by typing a slash in the first character position of a blank line. You can end the command with a RETURN or the ESCape key (the ESCape key displays the current line).

You can also type several commands on the same line. Use a comma or semicolon to separate one command from the next — a comma takes the place of a RETURN, and a semicolon takes the place of the ESCape key.

The following example shows how we used FILGE commands to turn a message into two shorter messages:

```
CompuServe                              Page EMA-8

Message in workspace exceeds
4000 character sending limit.
You must EDIT the message to
reduce its size by 384
characters before sending.
```

(We select *4* to EDIT the workspace.)

```
File Z99EMA.TMP - ready
```

(We move to the bottom:)

```
/B$                (Note: $ stands for the ESCape key.)
That's it. Thanks! Bye for now — Tony.
/W↩                (This displays the last line's number.)
[ Line 67 ]
```

(We move back 15 lines into the file:)

```
/N-15$
negotiate.
```

(We move back 1 line and display 4:)

```
/N-1,P4↩
contract, but actually we were not ready to
negotiate.
        I hope this letter is not too long. I still
have orders to give you. Here are the orders for
```

(Now we move back 1 line and define a buffer file:)

```
/N-1$
        I hope this letter is not too long. I still

/BNAME ORDER.TXT↩
```

(We move 15 lines to buffer file, deleting from this file:)

```
/AMOVE15↩
/W$
[ Line 52 ]                  (This shows that we reached
% FLGEOF - End of file                          the end.)

/N-1$
negotiate.
```

(We add an ending to this file, and EXit:)

```
Sorry, couldn't rest — see ORDER.TXT. Thanks!↩
/EX↩
```

Now the file is ready to send. After sending part one, we select *3* from the menu to create a message from a disk file. The file on disk is ORDER.TXT, the buffer file we used to hold the ending that wouldn't fit:

```
Name the input file, ? for help,
or ⟨ENTER⟩ to quit
:ORDER.TXT↩
Workspace loaded from
  DSK:ORDER.TXT.
```

The workspace now contains the ending that wouldn't fit, which we send as a separate message.

FILGE Commands

FILGE commands work on one *line* at a time, and the action occurs at the *line pointer*. You move the line pointer with some commands, and change text with other commands.

FILGE commands can be repeated for each line following the current line by typing a number (the number of repeated operations) before the command (after the initial slash).

/A/text
APPEND: Adds the text to the end of the current line. Press the ESCape key after typing *text* to display the line. To repeat the same append operation on the next line, move the line pointer and type */A* by itself.

/ACOPYn
APPEND — COPY TO BUFFER: Adds *n* lines (including the current line) to the end of the defined buffer file.

/AMOVEn
APPEND — MOVE TO BUFFER: Adds *n* lines (including the current line) to the end of the defined buff-

er file, *and deletes* the lines from the text file.

/B BOTTOM: Moves the line pointer to the last line of your file. Press ESCape after typing this command (rather than RETURN) to display the last line as well as move to it.

/BNAME filename.typ

BUFFER FILE: Defines a file as a buffer to copy text to or from, or un-defines the file if it is already defined as a buffer.

/C/old/new

CHANGE: Changes the *old* text to the *new* text on the current line. Press ESCape to see the line. To repeat the same change on the next line, move the line pointer and type */C* by itself. If you leave out */new* text, the *old* text is simply deleted. If you leave out *old* text (e.g., */C//NEW*), the *new* text is inserted at the beginning of the current line.

/Cn/old/new

CHANGE: Changes the *n*th occurrence of the *old* text to *new* text. The above rules on */C* apply.

/Dn DELETE: Removes *n* lines from the file, starting with the current line.

/EX EXIT: Closes your FILGE file, stores it in your disk area and returns you to the menu on page EMA-14.

/EXCNT

EXIT AND COUNT: Closes your FILGE file, displays the number of lines in the file, stores the file in your disk area and returns you to the menu on page EMA-14.

/GC/old/new

GLOBAL CHANGE: Changes the *old* text to *new* text from the current line down to the end of the file. If you leave out */new* text, the *old* text is simply deleted. If you leave out *old* text (e.g., */GC//NEW*), the *new* text is inserted at the beginning of each line, from the current line to the end of the file.

/GCn/old/new

GLOBAL CHANGE: Changes the *n*th occurrence of the *old* text in each line to *new* text. The above rules on */GC* apply.

/I/line

INSERT: Inserts *line* as a complete line following the current line. If you omit *line* text, the command inserts a blank line after the current line.

/L/text

LOCATE: Finds the first line in your file that contains *text.*, and moves the line pointer to that line. Before typing the command, make sure the line pointer is on a line *above* the *text* you are searching for. The command searches down from the current line.

/MERGEn

MERGE: Merge the next line with the current line, or merge the next *n* lines with the current line. A FILGE line can hold a maximum of 200 characters.

/Nn NEXT: Moves the line pointer down a specified number of lines from its current position. You can omit the *N* (e.g., both */N2* and */2* move the pointer down two lines). If you use a negative number *n*, the pointer is moved *up n* lines. */N* by itself (no *n*) moves the pointer down one line.

/Pn PRINT: Displays *n* lines on your screen, starting with the current line. The line pointer moves with each line displayed, ending up at the last line displayed. If you omit *n*, */P* displays the current line only, without moving the pointer.

/R/line

REPLACE LINE: Erases the current line and replaces it with the *line* you type. The line pointer remains at this line. */R* by itself replaces the current line with whatever *line* was typed in the last */R/line* command. Press ESCape to display the current line after replacing it.

/RESET

RESET: Restores the contents of the file as it was last saved by a */T* command, un-doing any editing changes made since the last */T* or file save operation.

/T TOP: Moves the line pointer above the first line in your file. Typing a */T* ensures that the entire file will be scanned in any subsequent search command. */T* also makes all editing changes *permanent* in the file.

/TCNT

TOP WITH LINE COUNT: Same as */T* command, with a display of the number of lines in the file.

/UNC

UN-DO CHANGE: Un-does the last change command performed on the current line.

/W WHAT LINE: Displays the line number of the current line.

FILGE commands can be used to edit any size text files transferred into CompuServe or typed. You have up to 128K bytes of storage area available (enough to hold 128,000 characters). You can send messages that are up to 4000 characters each via EMAIL, or use the file transfer facility described in the accompanying article. Either way, CompuServe provides a useful medium of information exchange.

Continued from page 6

```
1 News
2 Reference
3 Communications
4 Shop at Home
5 Groups and Clubs
6 Programmer's Area

Last menu page. Key digit
or M for previous menu.
```

The communications selection gives you access to the EMAIL facility, the CB facility, the User Directory, and an additional area not found in the Videotex Service — the Public Access Area, described in the next section.

For now, pick the selection for the programming area. After a message, you should get the OK prompt of the programming area. In this area you can write and execute BASIC programs and manipulate files.

Execute the FILGE program by typing its name followed by the name of the file you are creating:

```
OK
FILGE NEWMSG.TXT⏎

New file NEWMSG.TXT created - ready
```

Now start the send operation from your communications program. For example, if you were using Modem7, you would type a Control-*T* from terminal mode to specify and begin transmitting a file.

The text should appear on your screen as it is transferred. When it stops, type the following command:

```
/EX⏎
```

If you want to know how big the file is, type this instead:

```
/EXCNT⏎
[nn lines]
```

Both commands save the text in the file; the latter command also displays the number of lines in the file.

File Commands

There are several commands for displaying, copying and deleting files in your storage area.

The *CAT* (short for CATALOG) command displays the names of files in your area:

```
OK
CAT⏎
NEWMSG.TXT                    ORDER.TXT
OK
```

TALK WITH THE STARS
COMMX
HP125 1000
VAX
RBBS
PDP 11
UNIVAC
TELEVIDEO
COMPU SERVE
DEC 10 20 VT18X
TRS 80
THE SOURCE
GODBOUT
MORROW
KAYPRO
ZENITH
XEROX
ALTOS
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Circle number 5 on the reader service card.

Your storage area is also called a *directory*. The *DIR* command (short for DIRECTORY) displays more information about files in your directory:

```
OK
DIR⏎
   NEWMSG.TXT     6450     13-Sep-83  (4)
   ORDER.TXT      3250     22-Sep-83  (4)

   Total chars    9700       in 2 files
OK
```

The TYPE command displays the contents of a text file or BASIC source file. You would also use TYPE to download a file's contents to your computer. TYPE simply displays the text in the file, and if you've set up your communications program to capture any text that appears on the screen, you can capture the contents of the file and store it on your disk:

```
OK
TYPE NEWMSG.TXT⏎
```

With your communications program set up to capture what appears on the screen, TYPE helps to download the contents to your computer.

To rename a file, use the RENAME command:

```
OK
RENAME NEWMSG.TXT TO OCT12.TXT⏎
```

To delete a file, use the DELETE command:

```
OK
DELETE TEST2↵
```

To make a copy of a file in your storage area, use the COPY command:

```
OK
COPY TEST1 TO TEST.BAK↵
```

This command makes a duplicate of the file TEST1 and calls the duplicate TEST.BAK.

You can also copy a file from another user's storage area to your own if you have access to the other user's area (see "Providing Access To Your Files"). For example, this command copies the file REPORT.TXT from user 76703,433:

```
OK
COPY REPORT.TXT [76703,433] TO MYREPT.TXT↵
```

This command copies the file REPORT.TXT in the storage area for user 76703,433 to the file MYREPT.TXT in your user area, where you can use the TYPE command to view its contents.

Providing Access To Your Files

Your file storage area is secure from anyone reading or copying your files. You can, however, change the protection level of your storage area to allow anyone to read files or copy them.

There are two types of protection: one for each individual file, and one for the entire storage area. The first (file protection) makes it possible for other people to read one or more unprotected files, but not be able to read protected files.

The second (directory protection) makes it possible for other people to read a DIR display of files in your storage area, and to read unprotected files.

You must change the directory protection level to at least allow file reading in order to make unprotected files accessible.

The levels are:

Directory Protection Levels: Providing Access to Others

Level	read files	create files	read DIR
777	X	X	X
755	X		X
744	X		
700*			

* Usual protection level

File Protection Levels: Providing Access to Others

Level	read	write	execute
1	X	X	X
2	X		X
4*			

* Usual protection level

To allow users into your storage area, type the *PRO* command to change the protection level of your area (we change it to allow others to read files and read a DIR display):

```
OK
PRO #<755>↵
```

Enclose the directory protection level in angle brackets as shown, starting with the number sign (#).

To change the protection level for a file, use the *PRO* command with a filename and the level number in parentheses:

```
OK
PRO ORDER.TXT(2)↵
```

This command changes the file protection level to 2. To see the protection levels for files, use the DIR command:

```
OK
DIR↵
  NEWMSG.TXT   6450    13-Sep-83  (4)
  ORDER.TXT    3250    22-Sep-83  (2)

  Total chars  9700     in 2 files
```

The number in parentheses at the far right of each entry is the file protection level.

These *PRO* commands make it possible for other users to look at the storage area directory and copy ("read") the file ORDER.TXT into their own areas. The protection level for ORDER.TXT does not allow anyone to erase ("write to") or change the original file in your storage area. ("Execute" access applies to programs and the ability to run them.)

Each user must copy the file into his or her storage area. To do this, use the COPY command:

```
OK
COPY ORDER.TXT [70105,722] TO ORDER.TB↵
```

This command transfers a copy of ORDER.TXT to the user's storage area, calling the copy ORDER.TB.

Variations of these activities can provide for routine transfers. For example, a company could provide each branch office with a subscriber account, each with its own storage area to transfer files to each other. You could obtain another subscriber account for yourself in order to retain another "public" storage area and ID number, and still keep your private one.

To keep access secure, you might want to encrypt your information with coding that ensures privacy. Encryption programs written in BASIC are available from source code libraries — check with special interest groups (SIGs).

Public Access Area

The easiest way to make a file available to one or more subscribers is to "submit" the file to the public access storage area. To get to this area, select the communications submenu from the Personal Computing Service menu:

```
CompuServe                                Page PCS-30

COMMUNICATIONS

1 Electronic Mail
   (user to user messages)
2 CB Simulation
3 National Bulletin Board
   (public messages)
4 User Directory
5 Access
   (public file area)
```

From this menu select *5*, the Access system. You should then see the following:

```
Public File Access System
Use ? for help

Access:

1 BRO Browse thru files
2 UPL Upload a new file
3 EXI Exit from Access
4 HEL Help

Key digit:
```

These options are the four most-used commands in the public access system. For a summary of commands, type a question mark:

```
Valid commands:
S - Scan
BRO - browse
COP - copy to disk
R - read a file
DOW - download a file
UPL - upload a file
SUB - submit a file
KEY - search keyword list
ERA - erase a file
EXI - exit from ACCESS
SET - set menu & brief on/off
HEL - explains ACCESS
OFF - logs you off

? xxx - explain command xxx
```

The Scan and BROwse commands are provided for users to scan or browse filenames and subject words to find files of interest.

There are many variations of the Scan command. The simplest form is:

```
S↵

 [70003,1430]

 STARS.TXT            29-Oct-83 2310

 [70205,727]
 START.SAV            27-Oct-83 25340

 [71505,1172]
 MODSAV.ASM           27-Oct-83 39070
 MODSAV.DOC           27-Oct-83 8460
```

The *S* command displays a brief list of all *visible* files (the difference between visible and invisible is described with the SUBmit command). The display includes the filename, the date the file was submitted to the access area, and the number of characters (bytes) in the file. The display starts with the most recently added files.

You can Scan for specific types of files by specifying a "wildcard" filename with the Scan command. As in CP/M commands, you can type a filename match (or "wildcard") using an asterisk (*) to stand for any number of characters, and a question mark (*?*) stands for any one character.

For example:

```
S *.BAS↵
```

This command will display all visible files that have the extension ".BAS".

```
S REP???.TXT↵
```

This command will display any visible file whose name begins with "REP", has three more characters and has the extension ".TXT".

The order of entries in the display depends on which of the many options you use. Without options, the default sequence is in reverse-order of submission date (most recent first). If you specify a filename, or filename match (a "wildcard"), then the order is alphabetical by filename. If you use the */key* option, the files appear in no particular sequence.

This form of the command will display only files submitted by a particular user (*nnnnn,nnn* is the user's ID number):

```
S [nnnnn,nnnn] ↵
```

There are several options available with the Scan command. Options are typed after the filename (if you specify one):

/AGE:n
Display the entry only if it has been SUBmitted within the last *n* days.

/DES Display the description of each file as typed by the person who submitted it.

/PAUSE
Stop the display after each file is listed (useful with */DES*).

/KEY:list
Select only files which have the given set of keywords. The *list* may be a series of words separated by commas and/or spaces. Use an asterisk to narrow-down the search as in these examples:

Modem — any file with the exact key Modem
*Mod** — any key starting with Mod such as "Modem7"
**modem* — any key ending with *modem* such as "Smartmodem"
mod — any key with *mod*, such as "Smartmodem" and "Xmodem".

The BROwse command uses the same options; however, it assumes that you want the */des* (description) and */pause* options, and it automatically displays the description and pauses after each file:

```
BRO↩

[70003,1430]

STARS.TXT                29-Oct-83 2310

        Keywords: FELLOWSHIP STARS STAR

      Disposition:

      1  R   Read this file
      2  D   Download this file
      3  T   Top Access menu

      Key digit or ENTER for next:
```

To keep browsing, press RETURN. To return to the command level, type *T* at the prompt. Otherwise, you can read the file by typing *R*, or prepare it for downloading with *D*. Downloading for most users is a simple display of the file's contents, and you should set up your communications program beforehand to capture what you see on the screen. For Radio Shack computer users, the downloading can occur with protocols supported by the VIDTEX package available for all Radio Shack models.

Transferring Files to the Public Access Area

With the UPLoad command you can transfer a file from your personal computer into the public access area:

```
UPL MYFILE.TXT↩
```

This command makes room in the public area for MYFILE.TXT, which will hold the contents of the file you send to CompuServe. The command then sets up the communication link. If you're using a Radio Shack computer running VIDTEX, the program uses the error detection protocol; otherwise, it displays the following:

```
No error detection protocol in use.
Do you wish to be prompted for each line? N↩
```

We answered "no" to the prompt for each line of text transferred, because we don't need to slow down the transmission. Most users will not need this prompt; however, depending on your communications program and computer, you may want to use such a prompt. If you answer yes, UPL asks for the character to use as a prompt. This character would be sent to your personal computer after each line is transferred.

After answering "no" (or answering "yes" and supplying the prompt character), the UPL command displays:

```
Begin sending your data. Use a
control-Z (1A hex, 032 octal) to
indicate the end of your data.
```

We start sending the file from our communications program. We use Modem7, so we type a Control-*T* to specify the filename and start transmitting. The text appears on the screen as it is sent.

When all of it is sent, type a Control-*Z* to indicate to CompuServe the end of the file. This displays as ↑Z.

UFL then asks if your submission is to be visible or invisible. If invisible, other people will not see the filename or description in Scan or BROwse commands:

```
Visible (Y or N)? N↩  (No for invisible.)
Copying file to ACCESS...
File will be present within 24 hours.
Files are subject to being purged;
see ? PURGE for details.
```

Use the filename extension ".BIN" for files with eight-bit data (such as WordStar document-mode files, or program object code). Your communications program must be set to transmit eight-bit data.

To make the file visible, answer *Y* and supply keywords and a one-line description of the file, to be read by people using the BROwse command:

```
Visible (Y or N)? Y↩
```

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```
Keywords:
MODEM7 UPLOADING INSTRUCTIONS↵

Description (blank line when finished):
Using Modem7 Control-T for Text Uploading. ↵

Is this okay (Y or N)? Y↵
Copying file to ACCESS...
File will be present within 24 hours.
Files are subject to being purged;
see ? PURGE for details.
```

Before sending a visible file, check for other similar keywords with the *KEY* command.

Submitting a File From Your Storage Area

Perhaps you already have a file in the CompuServe storage area. To submit a file from your storage area to the public access area, use the SUB command.

You can SUBmit a visible or invisible file into ACCESS, just as described above with UPL. If a file is visible, its name will be seen when other people use the Scan command, and its subject words will be seen if people use the Browse command.

If it is invisible, neither the name nor the subject words will be seen in any commands. You must know the name of an invisible file to be able to use the Read command to read it.

You can pass filenames to other subscribers via the EMAIL facility (privately), or through the BULLET bulletin board system.

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"...quite easy to use." "...documentation is programmed..."
CP/M® Review, Jul/Aug 83
(reprints available from EWDP)

"...user does not need to know the number of fields or their sequence in the record..."
Microsystems, p122, Aug, 83

Select/exclude "...by interactive examination of records in real time."
Lifelines™ p36, Jun 83

Select/Exclude by 5 Methods
1. Test of contents [LT, GT, EQ,LE, GE,BT]
2. List of 300 items [Jones, Smith, etc.]
3. Range of record numbers [27 - 86]
4. List of 1000 record numbers [5,7,25,37]
5. Look at records - decide by keystroke

Send excluded records to second file

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Circle number 4 on the reader service card.

For example, to make a file privately available to six other people, you would submit the file as an invisible file to the public access area, and use EMAIL to send its name to the six people.

Here's an example of SUBmitting the file NEWMSG.TXT:

```
SUB NEWMSG1.T⏎
Visible (Y or N)? N⏎
Copying file to ACCESS...
File will be present within 24 hours.
```

You are limited to submitting up to 128K bytes (128,000 characters), which is the same as your disk quota. Also, you can't read or copy files you submit or upload, so keep copies in your personal computer archives, and a copy if needed in the storage area.

When you use the Scan command, the files you submitted or uploaded will be displayed with the total number of retrievals and the most recent access date. If a file is invisible, the suffix /inv appears after the filename.

Your files will stay in the access database for approximately thirty days before they are purged. CompuServe uses a formula based on the lack of retrievals over a period of time.

Providing Keys

Keys are words invented to point people to appropriate files. Some are meant to be general, and some specific.

You should use keys that are already in common use, if you intend to make your file available to people searching by those words. To decide on keywords, use the KEY command.

The KEY command scans through a list of keywords which have been entered with subscriber's files. The keywords are displayed in alphabetical order, and are followed by the frequency in which they occur.

To use the KEY command, type an exact keyword or a keyword match ("wild card") using asterisk (*) to stand for any number of characters. Here are examples:

```
KEY MODEM⏎
```

— Exact match for the key "MODEM"

```
KEY MOD*⏎
```

— Keys beginning with "MOD"

```
KEY *MOD*⏎
```

— Keys beginning, ending, or consisting of "MOD"

Copying From Access

The COPY command lets you copy a file from the Access area into your storage area. Use the Scan or BROwse command to locate the filename and user ID number to use with the command:

```
COP SAMPLE.TXT [nnnnn,nnn] ⏎
```

This command copies the file SAMPLE.TXT to your storage area. You supply the ID *nnnnn,nnn* of the subscriber who submitted the file.

Another version will change the name of the copy to any name you wish:

```
COP SAMPLE.TXT [nnnnn,nnn] TO filename.ext⏎
```

You cannot read or copy the files you submitted or uploaded to the Access area.

Use the DOWnload command to download a file. If you are using a Radio Shack computer, you can use the communications protocols supported by CompuServe (the VIDTEX program). Otherwise, for most users, the DOWnload command simply displays the contents on screen for you to capture with your communications program.

We use Modem7, and we start capturing data by typing Control-*Y*, then store the data after capturing it by typing *WRT* in Modem7's command mode. Control-*Y* can turn on or off the capturing mode, so that we can be selective about what we capture.

Deletes and Purges

Files in the ACCESS database are subject to being purged, or removed, under the following circumstances:

If the file was submitted more than 30 days previous, and has not been retrieved (through use of the Read, COPy or DOWnload commands) within 30 days, it will probably be purged. However, if the total size of the database exceeds 9 million bytes, and the file's activity (retrievals/day) is less than 25 percent, the file will be purged. Of course, these criteria are subject to change.

To delete files you have submitted, use the ERAse command:

```
ERA NEWMSG.TXT [70105,722] ⏎
```

This command erases the file we submitted in the previous example.

Leaving Public Access

To leave, use the EXIt command. You will return to the menu you used to get into Access. For example, if you entered from the communications menu, you'll return to it. If you came to the area from a special interest group, you'll return to the group.

We use the Access area to pass information to associates. Everyone must realize, of course, that the information may be copyrighted, and if you come upon a file that should be invisible to you, you should not copy it. The medium is useful as long as people don't abuse it.

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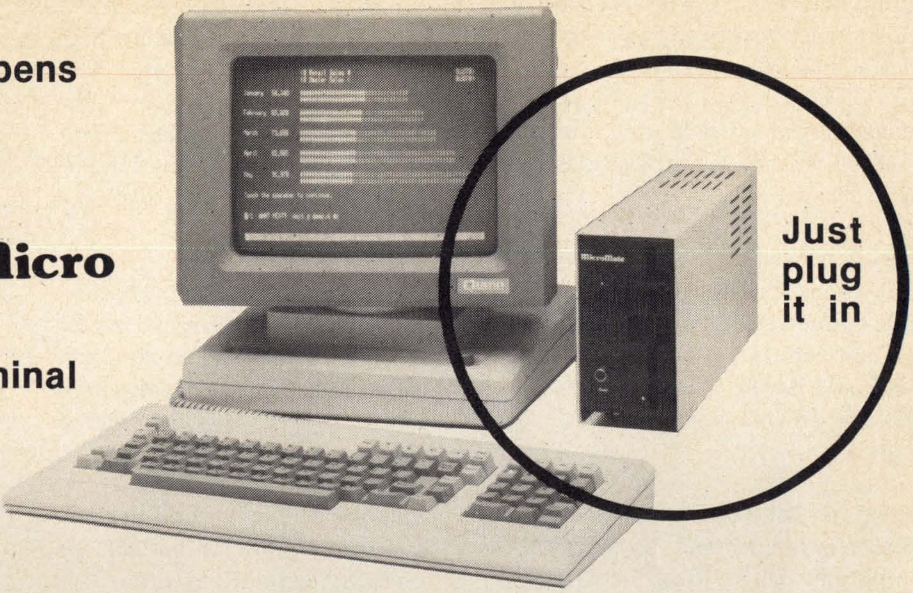

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Continued from page 5

are not readily understood by those who need to use them?

We think the only way to compare two programs is on a fully explained feature-by-feature basis. The result is nearly complete tutorials on how to use the programs, so that you can compare the features and how they work. We try such a comparison in this issue with two communications programs: COMMX and MITE.

These are the basic activities of any communications program, including the public domain (free) Modem7 program. Commercial programs like COMMX and MITE perform these activities and provide many more special features.

The features list is endless, but these are the ones in top demand. If you can buy a program with all these features, and learn how to use them, you'll discover that personal computer communications can be rewarding, and that even an unattended personal computer can work for you.

What Functions Do You Need?

Communications programs should be able to perform these functions:

- Act like a terminal when calling a remote "host" computer. This is called *terminal mode.* What you type goes to the host computer and, if the host received it, it is sent back to you and displayed (echoed).
- Communicate with another computer that is in terminal mode. This is called *conversational mode.* What you type is displayed and sent to the other computer at the same time.
- Capture or "log" everything you type and everything that appears on the screen while in terminal or conversational mode. All information typed and displayed is stored in your personal computer's memory, with an option for you to save it on disk.
- Upload text files to a "host" system or to another computer, without error checking protocols, but possibly with "flow control" parameters.
- Download text files from a "host" system or from another computer, without error checking protocols, but possibly with "flow control" parameters.
- Transfer any eight-bit data file between computers, with error checking protocols active, such as the Xmodem/Modem7 protocol, or the MITE, COMMX and Crosstalk protocols.
- Switch from "originate mode" to "answer mode" whenever necessary (if the modem hardware can also switch modes).

The special features of these programs are worth the time you spend comparing them. You should pick the communications program that handles these features in ways you can understand and use:

- Dial phone numbers automatically from a directory. This feature should let you pick a number and sit back while the computer does the rest.
- Set and change transfer speed (baud rate). You should be able to talk to other computers at 300 baud (30 characters per second), and if you have a 1200 baud modem, send and receive whole files over phone lines at 1200 baud (120 characters per second).
- Change and control the data transfer flow with start and stop characters. This is useful for changing speeds and for communicating with different systems.
- Filter special characters out of the transmission. Clears up communications with systems that send you unwanted characters that "glitch up" your screen.
- Activate printer to print everything typed and displayed. This may not be necessary, since in most cases it is preferable to save the information on disk first, then print it.
- Use a translation table to change characters in transmission. This is useful if the information requires such a translation from one system to another.
- Use keyboard "macros" (sequences of typed commands) for simple log-on procedures. This feature lets you define a lot of keystrokes into one simple keystroke.
- Store transmission control parameters for a specific call-up system with its phone number in an automatic dialing directory. Why look up settings every time you call this number? The program should already know the settings!
- Answer the phone and let you gain control of your computer from another computer or terminal. With this feature you can use your office computer from home (or vice-versa), or set up a system that friends or associates can call to leave messages, or set up an office electronic mail network.

Making Connections

Every computer has ports to connect printers and modems. Here are explanations of serial and parallel connections

by Steve Rosenthal

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These days it seems that there are dozens of ads and articles extolling the virtues of various types of computer networks — but for most of us, the real question is simply how to connect two computers, or how to get a computer and printer to work together. Networks are undeniably the wave of the future, but the path to the future is through the present, and the present for most of us is that serial or parallel connection.

Connecting two computers for data exchange is easy in theory, but in practice there are a number of steps to go through before you can get results. None of the steps is difficult, but all of them must be done before you can sit back and watch your computer do the talking. Similarly, while the salespeople often assure you that a new serial printer will just "plug right in" to your system, you may find the "right" does not come easily.

Connecting two computers and connecting a printer to a computer are very similar. First I'll show how the data can be exchanged between computers, and with that understood, we'll go on to computers and printers.

Figure 1 shows one way of looking at the steps — as layers, starting with the paths you have for transporting the data between the computers, then moving out to checking connections so that there won't be sparks, and continue out through the layers needed for efficient communication. I call the layers Right Pathways, Right Voltages, Right Connections, Right Cables, Right Speed, Right Characters, and Right Protocol.

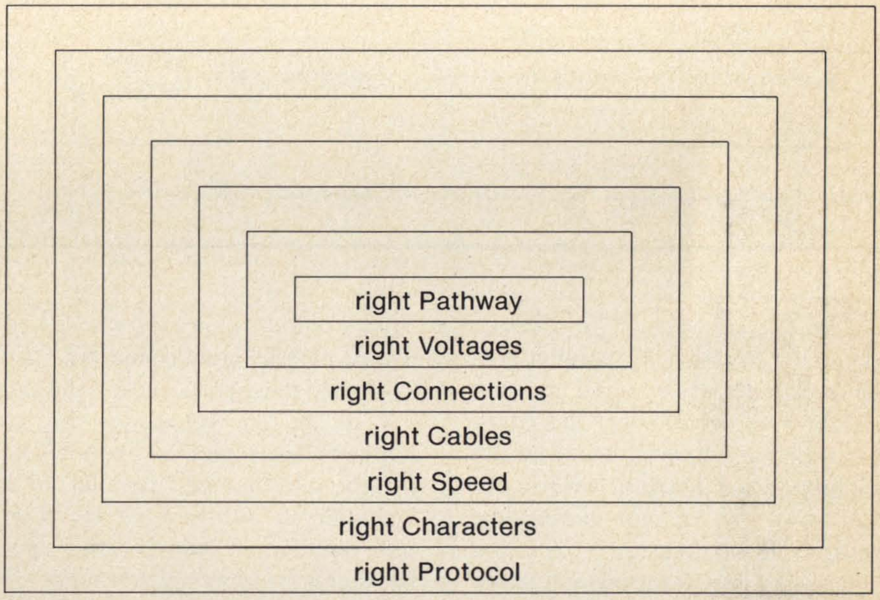

Figure 1. *Data connections are a series of layers.*

Right Pathway

Before you actually hook up the wires for a data connection, you have to decide what type of connection you're going to make. To get data from one computer to another, there are four common routes: direct cable connection of serial ports, direct cable connection of parallel ports, connection by modem, and connection through a network.

In serial port connections, data travels one bit after another on the same wire (figure 2). A serial connection can have as few as three wires (one for data in each direction and a ground or reference-level wire), but may also have several supervisory lines in addition to the data lines.

Direct connection by serial ports is one of the best ways to connect two computers that are located in the same place. With an increasing number of portable computers in use, it is also becoming a routine matter to bring one computer in for a chat with another. Serial connections are among the most standardized, the cables are available off the shelf, and many systems include software for this type of data exchange.

To make this kind of connection, each computer needs an available input and output serial port. Almost all small computers use the "RS-232" standard for serial ports, but a few use "TTL" or an older standard known as "current loop", "TTY", or "20 mA" (all discussed below). To connect two machines via serial ports, both must use the same standard or the path must be routed through an adapter circuit.

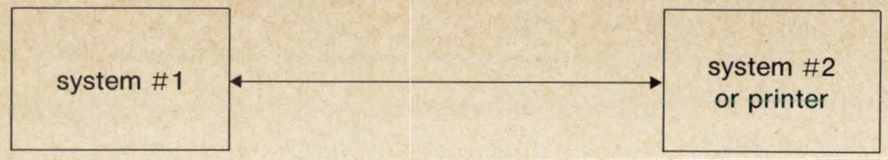

Figure 2. *Serial connections exchange data one bit at a time.*

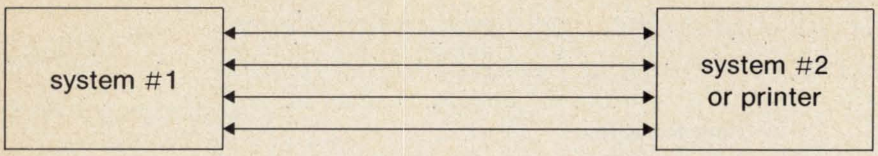

Figure 3. *Parallel connections use one line for each bit in the word.*

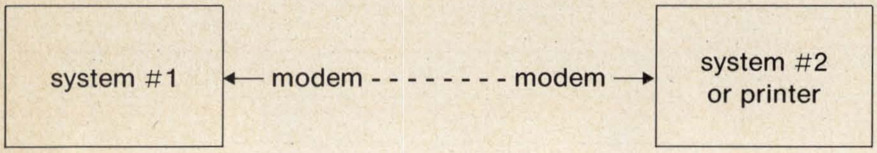

Figure 4. *Modems are like serial links, with the data traveling by telephone.*

Direct connection by parallel port does the same job as by serial port, but it lets the data travel faster. On a parallel connection, there is one wire for each bit position in a data word, so the whole word can be sent in the time needed to transfer one bit.

For even faster transmission, parallel circuits usually employ hardware signal lines to regulate the speed of transmission. This allows the two systems to exchange data at their actual maximum rates, instead of settling for some slower but guaranteed possible rate as must be done with serial transmission.

Because parallel connections are used mostly to connect computers with character-oriented input and output devices such as printers and keyboards, they are almost always set up for an eight-bit word. However, a few sixteen-bit personal computers have 16-bit parallel ports, and thus can transfer sixteen bits at a time.

To make a parallel data transfer, each computer needs to have both a "Centronics" or parallel output port, and a parallel input port. Although the "Centronics" or parallel output ports are common, few computers also supply the parallel input connector.

To find these ports, look in the manual or on the connectors for one marked "Centronics" or "parallel out" for the output, and "parallel in" or "auxiliary in" for the input. If you only have one marked "parallel", it's a good bet that it is output and not input.

Connection by Modem

To exchange data with a computer that is not at the same location, the best way is usually to send the data over the telephone network. Because the phone networks were designed for tones and not computer data, you need a device called a *modem* at each end to change computer signals to tones and then tones back to computer signals.

Modems consequently work in pairs, and while you don't have to have the same brand of modem at each end, you do have to have ones that use the same tone codes. The possible speeds at which data can travel over the phone line is also standardized, and for each standard speed there is an accompanying tone code.

Type 103 modems send and receive characters at 30 characters per second (also called 300 baud or 300 bits per second), and use one set of tone signals. The other type of common modem is the type 212 modem, and it sends characters four times as fast (120 characters per second, also known as 1200 baud or 1200 bits per second). Type 212 modems almost always have built-in type 103 modems as well, so the 212 modems can send and receive data at either 300 baud or 1200 baud, using the appropriate tone code for each speed.

A third type of modem, the type 202, is somewhat like the 212, and sends information at 120 characters per second. However, it cannot listen for data while it is sending, and uses a different tone code. Type 202 modems are now rarely used for small computers, but are often sold at computer flea markets to people who think all 1200 baud modems must be the same.

Virtually all the modems that you are likely to run across connect to your computer in one of two ways: some modems are built for a particular kind of computer, and plug right in; other modems are made to work with a range of computers, and connect with a slight variation of the same RS-232 serial port found on computers and terminals.

If it's a plug-in type modem, then all you have to do is buy a brand made for your computer and follow the instructions on how to plug it in. Universal modems need to be connected almost as if they were computers or printers. Although two computers connected by modem act the same way as if directly connected by serial port, many details of the actual connection may be different.

Networks

Networks are systems for connecting two or more computers, where the connection acts to regulate the flow of information, not just as a passive carrier of signals from one system to another. In a network, the way in which data is exchanged is governed by a set

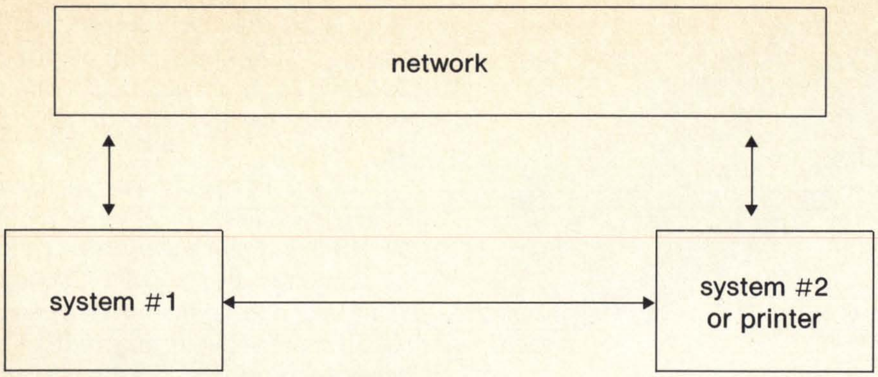

Figure 5. *Systems can talk through networks instead of directly to each other.*

of rules, and each computer connected to the network must operate according to those rules.

Because of the way that the connection from each computer to the network is defined, one computer doesn't have to know anything about the operation of any of the other computers on the network. The only information required is how to send and receive data from the network itself.

There are no widely-accepted or general networks for small computers at this point. The most popular systems are either still too expensive for most users, limited to one brand of computer, or still too new for wide acceptance. In most cases, connection from the computer to network is based on a specialized network adapter, so the rules for how this is done differ with each manufacturer. But in any case, connecting small computers to a network is presently more complicated than most people who are not hardware experts would want to deal with.

Serial Voltages

With most modems and computers and many printers using serial interfaces, at some point you'll probably have to hook up a serial connection. One of the first factors you should consider is whether both systems use the same voltage levels. Mismatched voltages are the only data hook-up error that will actually harm computers or networks.

Internally, most computers use circuits that run on 5 volts, and these circuits may be damaged by voltages more negative than 0 volts or more positive than 7 volts. On the other hand, some data communications circuits run on plus and minus 15 volts. Connecting a voltage like this to a 5-volt circuit could permanently destroy chips at either or both ends.

You can tell what voltages the circuit uses by actual measurements, but in most cases it isn't necessary to know. Most serial circuits follow one of only a few standards, and each standard specifies a voltage level. For serial connections, the three types of connections you're most likely to find are RS-232, current loop, and TTL.

RS-232 connections send information with voltages that switch between a nominal +12 and -12 volts (although in practice each voltage can be anywhere between 8 and 15 volts). Because these voltages can harm other types of circuits, RS-232 circuits must only be connected to other RS-232 circuits, and not to TTL, parallel, or "Centronics" circuits.

Current loop circuits, used principally on older Teletype terminals, specify their outputs and inputs in terms of current flows and resistances instead of voltages. The computer or modem provides a current source, and the terminal sends the signal by opening and closing a set of switch contacts. Because the original switches are mechanical and not electronic, they need a definite value of current flow to maintain good contact but not cause overheating. So for the most part, these circuits were specified as using a current flow of 20 mA at low voltage.

As seen by a voltage-sensitive circuit such as an RS-232 or TTL input, the active side of the current-loop circuit (the unit that includes the current source) seems to be sending out a voltage approximately equal to the power supply voltage driving the current source. Since most newer equipment with current-loop connections also provides an RS-232 port and the same power supply is used for both, most current loop circuits appear in voltage terms to be 12 or 15-volt connections. Consequently, connecting a current-loop output to a low-voltage circuit such as a TTL input can destroy that input circuitry.

On the other hand, the passive side of the current loop normally provides no voltage output at all. With a connection through the proper resistor and the right voltage supply, this end can be made to closely mimic a voltage output of either RS-232 (12-volt) or TTL (5-volt) levels.

TTL circuits transfer information using the same voltage levels as is used in the internal circuitry of most computers. In this method, a voltage between ground (reference) and 0.8 volts is the low state, between 2 and 5 volts the high state. As normal TTL circuits are only guaranteed to withstand 7 volts, connecting them to a 15-volt RS-232 or current loop circuit is asking for trouble.

Which Circuit do You Have ?

There are three ways to tell which type of circuit you have at either end of the connection. The easiest is to check the manufacturer's literature. Most often the information won't be in the form of a voltage specification, but will simply be the name of the interface standard.

The familiar *RS-232* is the 15-volt circuit; Centronics, Centronics-compatible, IEEE-488, and TTL are all 5 volts. Serial ports on general-purpose computers less than half a dozen years old are almost always RS-232 (15-volt) unless stated otherwise. Parallel ports will normally be 5 volt. All standard modems now use RS-232 connections (although older ones may be set for the

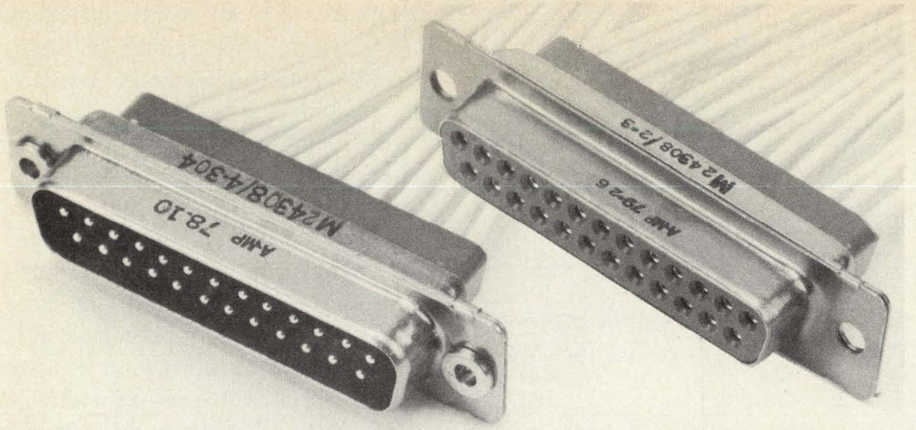

Photo courtesy AMP Inc. (Harrisburg, PA).

Figure 6. *DB-25 connector used for RS-232 cable connections.*

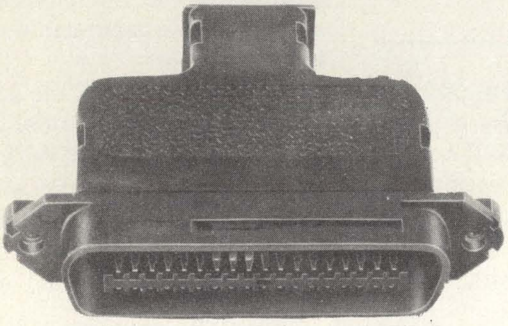

Photo courtesy AMP Inc.

Figure 7. *A Centronics-style connector has wedge-shaped contacts.*

current loop method explained below and some models in the future may use the new RS-449 standard).

If you are handy with a voltmeter, you can actually check the voltages. If you find a negative voltage or a voltage above plus 7 on any pin of the connector, you have a 15-volt circuit (if you see anything above 15, get help from someone who knows hardware). If there is no voltage at all (presuming the equipment is on and you are measuring correctly), you have the receiver (or "passive") part of a current loop circuit.

Try Your Luck

You might, of course, ignore all warnings and simply plug the circuits together and see what happens. If you're lucky, everything will be compatible. And if not, some designers have anticipated this possibility and protected their circuits. If the worst happens, you'll have learned the hard way. The worst, however, could be a repair bill in the hundreds of dollars.

Many people take the shape of the connector as a guide to what kind of circuit is provided. RS-232 circuits use a miniature D connector — one with a row of 13 pins (or holes) on top and second row of 12 more. The connectors and sockets have a trapezoidal-shaped outline (like a rectangle with sides angled in towards the bottom). This connector style is also known as DB-25, with the 25 standing for the number of pins (figure 6). DB-9 and DB-37 styles are also in common use, but do not mate with the DB-25s.

The standard connector for a Centronics-type circuit is distinct because instead of small round pins, it uses trapezoidal contacts — the pins have been replaced with flat contacts over a plastic piece shaped like a wedge. The matching socket has a triangular or trapezoidal depression into which you slide the connector.

TTL-compatible circuits use many different connectors. The most common is a card-edge connector, where one part is the actual edge of a circuit board cut to a projecting tab, and the other a flat connector which slides over it.

Unfortunately, the only correlation that is most likely to be correct is that an RS-232 circuit will use a miniature-D connector. Because the Centronics connector is less common, many manufacturers also put their parallel Centronics connections on miniature-D connectors. Plugging these two together, remember, is asking for trouble. So don't take connector size and shape as reliable indications of compatibility.

Data Connections

Although most RS-232 serial ports look physically alike (they commonly use DB-25 connectors), there are two different types. That's because the standard was originally meant for connecting modems to terminals, and one goal was to allow the connection to be made by a straight, pin-for-pin cable. To allow data to flow from modem to terminal on one wire and from terminal to modem on another, the two are wired slightly differently.

On the modem side (technically called the DCE or data circuit-terminating equipment), data is sent out on pin 2 and received on pin 3. On the terminal side, it's the opposite: data must be sent out from pin 3, and received on pin 2. On both, the signal is sent as a voltage relative to pin 7, signal ground (see figure 8).

On some (very few) computers, the line to pin 7 is not connected. Despite a very clear statement in the RS-232

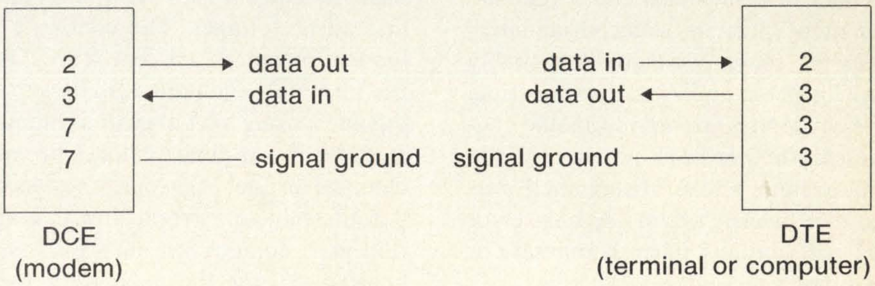

Figure 8. *The two types of RS-232 connectors are wired slightly differently.*

standard that pin 7 is to be used as the signal ground (reference level for signals) and pin 1 as a safety ground connecting the cases of equipment, a few manufacturers have decided that it is easier to connect three pins in a row than those with a gap between. These few models use pin 1 as the signal ground, sometimes connecting it to the case as well. If you run across such a model, first check that there is no power-line voltage on the case and pin 1 before connecting it to pin 7 of another machine.

Whether the connector is a male or female connector doesn't really tell you about its wiring. On both modems and terminals, the standard is for female connectors on the device, with male connectors on the cable. In the few cases where that is not so, the wiring is usually otherwise standard except for connector gender.

If both computer serial ports are wired like terminals (or if both are wired like modems), you'll need either a crossover cable or a *null modem*. The first, as its name implies, is simple a cable which has the wire from pin 2 at one end going to pin 3 at the other, and the pin 3 wire going to pin 2.

The null modem is a similar arrangement, but wired directly between two connectors without any length of cable in between — you use it at the end of a cable or between two cables to cross the data lines over (it also may connect certain status and control lines described below).

If one computer is wired like a modem, and one like a terminal, then you're in luck. A simple straight-through cable is all you'll need.

If you don't know whether your computer is wired as a terminal or a modem, you can check it easily if you have any programs which send data out the serial port. The output pin will change voltage (measured relative to pin 7) when data goes out, the input pin will not. And when there is no data being sent, the output pin rests at a nominal -12 volts (but in practice often a value from -5 to -15 volts). The input pin usually floats (has no driving voltage), and will read as a lesser voltage.

Next time: how to wire up a serial connection.

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User's Guide
TO CP/M SYSTEMS & SOFTWARE
CP/M Plus SuperCalc Disk Utility dBASE II

Correction For Issue #4

Yes (as one reader guessed), the typesetting translation table thought that the @character was an end-of-line marker in the example for using DU (Disk Utility) to search for a string (page 57). The correct command should be:

```
:=LIX;CA@,LXI;W↩
```

Sorry for the error — we hope it did not cause problems for people using DU.

Computer Communications

Common terminology for computer communications and videotex.

by Tony Bove & Cheryl Rhodes

This glossary has some of the terminology used in this issue to describe computer communications over telephone lines.

acoustic coupler: An acoustic coupler converts the audio signals transmitted through the telephone network into the digital signals which your microcomputer or terminal can understand, and converts digital signals from your computer into audio signals for transmission through the telephone network.

You connect this device to your microcomputer or terminal by a cable, and place the standard Bell telephone handset into its coupler when using it to communicate over the phone. See also *modem.*

ABBS: An Apple Bulletin Board System (ABBS) is very similar to a CBBS (usually run on CP/M systems). The first generation were used as message systems, allowing users to exchange information in message form.

Today, a caller equipped with an Apple microcomputer, a modem, and some communications software can choose from over 100 ABBSs in the USA. Once you have reached the ABBS, you have your choice of reading messages, or leaving your own. There are more sophisticated versions of the ABBS software available, allowing many more options for both the system operator and user.

then sent, followed by a stop bit (a signal) to end transmission of the character. The characters do not have to be transmitted at regular intervals, and the time interval between transmission of each character need not be the same. Compare with *synchronous transmission.*

baud: Baud refers to the number of bits of data transmitted per second. For example, 300 baud is approximately 30 characters (letters, digits, symbols, etc.) per second. If you have trouble with bad phone lines while transferring data at 300 baud, you might be able to successfully transfer the data at a slower baud rate, such as 110 baud.

Bell 103: Bell model 103 is the modem frequency standard (developed by Bell Telephone, and adopted by independent modem manufacturers) used by modems that operate at a rate of 300 baud. The Bell 103 transmission frequency is reliable for transmission at a speed of 300 baud or lower. A Bell model 212A modem, (or one that conforms to this standard, manufactured by an independent supplier) offers more reliability for higher speed transfers.

bit: As in *CP/M ".COM" files store codes in all eight bits of each byte, whereas ASCII text files store codes in only seven of the eight bits.* A bit is the smallest unit in the binary system used to code data.

answer mode: When your modem is set up to answer the phone, it is in answer mode, and the acoustic tone it sends is high-pitched. When your modem is set up to originate the call, it is in originate mode, sending a lower-pitched signal. For communication to occur, one modem must be in answer mode, and the other must be in originate mode. You can switch modes once communication is established if both sides switch accordingly. Use answer mode to answer the phone.

ASCII: ASCII stands for American Standard Code for Information Interchange — a popular code used by minicomputers and microcomputers. Characters (letters, numbers and symbols) are assigned numeric codes, so that different computers can understand each other (not so that we can understand computers). Another code is EBCDIC (Extended Binary Coded Decimal Interchange Code), understood only by IBM and IBM-compatible systems, and offered as an option on some other systems.

asynchronous transmission: Most personal computers communicate asynchronously. Transmission is controlled by start and stop bits to indicate the beginning and end of each character being transmitted. The start bit (a space) is first sent to the receiving system, allowing the receiving system to synchronize with the sending system. The 7-bit ASCII code for a character is

block: For CP/M files, a block of data consists of 128K bytes (128x1024 bytes). A block is a group of characters that are transmitted together.

buffer: As in *the print buffer is currently empty.* Buffer refers to a temporary storage space in memory used to hold data that is to be used by a device attached to your computer. A printer printing at 300 baud will lose data sent to it at 600 baud, unless there is a buffer to temporarily store the data.

byte: A byte is a unit of measurement of information, where the information is coded in binary numbers. Each "1" or "0" in a binary code number takes up one *bit*, and eight *bits* make up one byte (four *bits* make a *nibble*, or half-a-byte).

One byte is roughly one character of information (a letter, digit, punctuation symbol, space between words, etc.). Bytes are measured in multiples of 16; e.g., one *kilobyte* (as in 64K, where "K" stands for one kilobyte) is 1024 bytes, and one *megabyte* is 1024K (1024x1024) bytes. These measuring units are used to describe memory storage, as in *This hard disk can store up to 2.2 megabytes (2.2M or 2.2Mb).*

call-back: Some operators of computerized bulletin board systems use the same phone line for both human and computer communication. If you call such a phone, let it ring once, hang up, and immediately re-dial (call back) the number. The single ring alerts the receiving computer that another computer is about to call. The second time you dial the number, the computer should answer.

carrier: The digital signals produced by your computer are translated to sounds (so they can travel the phone lines) by a modem. These tones are the carrier of information between two systems. The variations in the tone of the carrier are decoded by the modem at the receiving end, and translated back into digital signals.

CBBS: A CBBS (Computerized Bulletin Board System) is a computer system set up to run bulletin board software. With a modem attached to your microcomputer, you can call a CBBS, an ABBS (for Apple computer users), or an RCPM (remote CP/M system, for CP/M users). The original "CBBS" was written by Ward Christensen.

The bulletin board software allows the CBBS to send, receive and store messages, and sometimes allows program transferring. To find out if there is a CBBS near you, you can call The Novation Company in Reseda, CA, (213) 881-6880, and using the password **CAT**, choose item 18 on their menu to get a listing (updated monthly) of all CBBSs (free public access) and their phone numbers.

If you have access to a CP/M based computer, see the list of RCPMs in issue #3 of *User's Guide.* Alternatively, you can write to: AMRAD (Amateur Radio Research and Development Corporation), 1524 Springvale Ave., McLean VA 22101. Enclose one dollar for a list of active systems.

Christensen protocol: A commonly-used error-checking protocol for error-free file transmissions to and from CP/M systems. To use the protocol, both computers in communication must be using a program (such as Modem7, Xmodem, COMMX, MITE, etc.) that supports the protocol. The protocol was designed by the inventor of Modem7 and CBBS — Ward Christensen.

CompuServe: Compuserve is a commercial electronic data base service, headquartered in Columbus Ohio, and owned by H & R Block, Inc. CompuServe offers access to data bases, services like electronic mail and an electronic bulletin board, and entertainment. See article on CompuServe in this issue. For more information about subscribing, etc., write to: CompuServe, 5000 Arlington Centre Boulevard, Columbus OH 43220.

Control-Q (↑Q): One of the special character sequences (XON of the XON/XOFF protocol) recognized by many different computers and terminals. When you use Control-S (XOFF) to stop your screen scrolling, you can

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use Control-Q (XON) to start it again. This protocol (XON/XOFF) lets you interrupt transmission while communicating with another computer (handled automatically by most modem programs).

conversational mode: When two personal computers try to link up in communication, and both are in terminal mode, one computer has to "echo" each character typed and displayed in order for both computer screens to display data. To simulate "echoplex" in a personal computer, use conversational mode, which is a form of terminal mode that operates a half-duplex conversation on a full duplex or half duplex line.

CRC (Cyclic redundancy check): CRC is a method of checking for transmission errors in a block of data. For example, CRC-16, used in the COMMX program, is a specific computation using a polynomial $x\uparrow16 + x\uparrow15 + x\uparrow2 + 1$ to detect transmission errors in blocks of data transferred.

data base: General name for a set of files containing any sort of data. Information services carry many independent data bases (data files from information providers). You can set up your own data bases with data base management programs.

data set: As in *I borrowed a very old General Electric DigiNet data set and it still works!* Same as *acoustic coupler.*

Dow Jones Electronic News Service: Dow Jones operates a commercial news and financial information service, available to computer or terminal owners who have modems and appropriate software. Among the data bases offered are: Dow Jones news service, Wall Street Journal highlights, Wall Street Week (transcriptions of the popular public TV show), and money market services. To try out this service (the first hour is free), call 1-800-257-5114. In New Jersey and Canada, call 609-452-1511. These are Dow Jones customer service numbers, so humans will answer.

downloading: The act of receiving data from a host computer into a file on your personal computer's disk. Downloading of data can occur with or without error-checking.

echoplex: In full duplex communication, the computer playing "host" (usually in answer mode) sends every character you type back to your computer for display. Since your computer is in terminal mode, there would be no other way to see the character you typed. Services like CompuServe and The Source use echoplex. By using echoplex and terminal mode, you are sure that communication is occurring because you can see the characters you typed — which means the host computer "echoed" them correctly.

eight-bit data: When you set up communications, you decide whether or not to allow the transfer of all eight bits of each data byte, or only seven bits. Ordinary text requires only seven-bit transmissions; transfers of binary data, programs, and WordStar text files (with justification and printing codes) require eight-bit transfers with an error-checking protocol. (See *parity* for another use of the eighth bit).

electronic bulletin board: An electronic bulletin board service lets users compose and store messages (text) on a call-up system (such as CompuServe, The Source, community CBBS, etc.), where the messages can be retrieved by anyone. Usually those who retrieve such messages are searching the storage area for terms like "FOR SALE", "EMPLOYMENT OFFER", etc. The service is usually open and available to anyone who calls the system. See also *CBBS*

electronic mail: Information services like The Source and CompuServe, as well as large time-sharing services like Tymnet and Telenet, offer a service known as electronic mail that gives any user the ability to compose and store the text of a message on the system for later retrieval by another user. The sender must know the receiver's identification number (electronic address) to send a message. The mail service is instantaneous — as soon as the sender composes and stores the message on the system, the message can be retrieved by the receiver.

Compare this service to *electronic bulletin board.*

error-checking: File transfers between computers can occur with each block of data checked for accuracy during transmission. Some protocols that allow error-checking are the Xmodem/Modem7 protocol, COMMX, MITE, CLINK, and parity.

full duplex: When transmission occurs in both directions simultaneously, the two systems are said to be operating at full duplex. If you're calling a host computer operating at full duplex, you should set your modem to full duplex mode to have your computer or terminal act as a remote terminal connected to the host computer. Some modem programs also require a "full duplex" setting.

In full duplex mode, characters you type at your keyboard do not appear on your screen until the host computer "echos" them (sends them back to you). This is why you sometimes see strange characters on your screen that do not correspond to the characters you typed. A bad connection or line noise changes the characters that are sent back to you.

half duplex: When transmission can occur in only one direction at a time, and both systems are capable of both sending and receiving, the systems are capable of half duplex transmission. For example, personal computers "talk" to each other in half duplex mode: everything you type is displayed on your screen as well as on the other computer's screen. Compare with *full duplex.*

If you use half duplex mode to communicate with a host computer (using a terminal, or turning your personal computer into a terminal), you will see two of each character you type at your keyboard. The first occurrence of the character is the result of your typing it and simultaneously sending it to the host computer; the second occurrence is the result of the host sending it back

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(echoing it).

host computer: This term refers to the system you are calling, such as CompuServe, The Source, a mainframe computer operating a port in answer mode, etc. In a communications setup, one computer must be acting as "host" (perhaps a personal computer in conversational mode).

inter-character delay: When uploading to a host computer, the host must be listening for each character sent to it, or it loses characters. Some programs let you set an inter-character delay that gives the host enough time to perform its housekeeping and still receive the next character.

local network: As in *this local network consists of six computers connected by cables to a hard disk.* Computers or terminals can be connected to each other by cable or over telephone lines or through other telecommunications equipment. The computers can send data to each other, and share more expensive devices such as hard disks and printers.

Three popular local network configurations are *rings, stars* and *buses* (also known as *chains*). The *star* configuration uses a central processor. The *ring* configuration passes data around a ring to its destination. If one node fails, the whole network fails unless a relay or bypass connection has been built in at each node. The *bus* configuration allows all nodes to receive data almost simultaneously.

log file: A file containing the text of a communications session, captured as it appeared on your screen or as you typed it while in terminal mode.

modem: A modem (an abbreviation for modulator-demodulator) is a device you can use to connect your computer to your telephone. Modems convert telephone signals (tone variations) into digital signals understood by computers. They also convert digital signals into tone variations, so they are two way communication devices. Modems are used to send and receive data, and vary in price. Acoustic couplers use the telephone handset, and are less expensive than direct-connect modems, which can be plugged into a telephone wall outlet.

Modem7: A public domain (free) communications program that provides terminal mode, conversational mode, and many other features, plus the ability to transfer files using the error-checking Christensen protocol. There are many versions of Modem7 for various CP/M computers, and some customized versions for using the PMMI modem board, the Hayes Smartmodem and other popular modems.

originate mode: When your modem is set up to make a phone call, it is in originate mode, and the acoustic tone it sends is low-pitched, barely audible. When the modem is in answer mode

Continued on page 74

Converting Text Files: Perfect Writer to WordStar

Here are the steps for converting text files created by Perfect Writer to WordStar document files that can be edited and printed from WordStar.

by Tony Bove & Cheryl Rhodes

Word processing programs create text files that contain mostly text you can read and use with other word processing programs. However, when you use such programs, you may also store codes in the text for printing effects. The codes make the text file "incompatible" with other word processing programs.

For example, if you purchased a Kaypro computer with Perfect Writer, and then decided to switch to WordStar, you would be faced with the formidable task of converting your Perfect Writer text files to WordStar text files.

The first problem you'd encounter would be the fact that Perfect Writer paragraphs, when read by WordStar, have "hard" line endings (〈 symbols) that make it very hard to re-form the paragraphs using WordStar's paragraph re-form command (Control-*B*).

Also, every word processor has its peculiar set of printing control codes. WordStar and Perfect Writer handle printing controls in radically different ways, and you have to replace the Perfect Writer codes with WordStar codes. This article should be helpful in showing how to do a complete conversion of any text file.

Set Up a Copy and Mark Paragraph Endings

Start the operation by copying the Perfect Writer files to another disk, and making copies of the files you are to convert, so that if you make a mistake in conversion, you can start again with a fresh copy.

Start WordStar and select document or non-document mode to edit a Perfect Writer text file (not an intermediate or data file, which can't be edited by WordStar). You can use either mode as far as we know (we experimented with both on a large file, and found neither mode to be quicker or easier). Non-document mode may be faster because WordStar does not try to calculate where page markers should be. Document mode is required for later steps in this conversion.

With the file in your workspace, move downward through the file looking for some recognizable and consistent landmark for the ends of paragraphs. You must put a new and different marker at the end of each paragraph — use something like two ampersands (*&&*) or dollar signs (*$$*). If the file is a Perfect Writer file, *do not* use @ symbols! They are used by Perfect Writer, and you want to use unique characters to search for (characters not used by the word processing program that created the file).

You must scroll through the whole file unless you used some consistent method of starting paragraphs — such as tab spaces (five to eight spaces) to start each paragraph, or a blank line between paragraphs.

We use a five-space tab, so we used the ↑*QA* command to find each occurrence of ↑*N* followed by five spaces. The ↑*N* stands for a carriage-return/line-feed combination used by WordStar and Perfect Writer to end each line.

Some programs use only carriage return, and some use only line feed. WordStar displays a carriage-return-only ending with a dash (-) in the rightmost column, and a line-feed-only ending with a J in the column (normal end-of-line is blank or a 〈 symbol).

To find, replace, or use in a replacement a single carriage return, type ↑*PM*. To find, replace, or use in a replacement a line feed, type ↑*PJ*.

We use ++ as a unique marker for ends of paragraphs. While moving through the file marking the ends of paragraphs, or after using ↑*QA* to quickly replace markers with new markers, search through the file for "hard" lines — single lines that are not part of paragraphs. Mark the ends of these with another unique code — we use +=.

Why are you marking the ends of single lines and paragraphs? Because you are about to do away with *all line endings*! After doing away with endings, you are going to substitute WordStar line endings for the markers you are putting in.

Step-by-step

Perfect Writer uses a carriage-return/line-feed combo to end lines, but each line has a "hard" end, and paragraphs cannot be easily re-formed using WordStar. Therefore, we are going to do away with all of them, briefly, and put back in only the "hard" ones we need. Finally, using a quick version of the Control-*B* re-form command, we'll re-form every paragraph.

Here are the steps:

1. Copy the file, and use WordStar to edit the copy in either document or non-document mode. *Be sure that insert mode is on.*

2. Invent two new markers, and place one at the end of every paragraph, and the other at the end of every "hard" line. Use ↑*QA* if you can find another marker or "landmark" (such as ↑*N* followed by five spaces) to replace with your new marker.

3. Save the editing changes with ↑*KD* if the file is long, and re-edit it (this is a quicker way to move the cursor back to the top of the file). Use ↑*KS* if you wish on smaller files, since it also puts you back at the beginning. Perform this save after every subsequent step.

4. Using the ↑*QA* command, find every end-of-line character (typically ↑*N*, but could be ↑*PM* or ↑*PJ*), press RETURN, and type one space followed by RETURN as the replacement. The space is necessary in most cases to keep words from joining. Type *GN* followed by RETURN as the option (globally, without asking), and press your space bar to speed up the operation (to keep WordStar from updating your screen for each change). This step may take a while, and there will not be any change in the display until it finishes. When it finishes, the screen tells you to press ESC. Press your ESCape key.

5. To avoid wasting more time, save the file with a ↑*KD*, and re-edit it using document mode (Control-*R* will repeat the filename). This places you back at the beginning of the text. The text should look strange because it is all one "line."

6. Using the ↑*QA* command again, find the end of paragraph marker you invented, and replace it with ↑*N* and five spaces (or ↑*N*↑*N* for a blank line between paragraphs). Press RETURN, and type *GN* followed by RETURN for the option. Press your space bar to speed up the operation.

7. When it finishes, press your ESCape key, then save your text with ↑*KD*. Return to edit the text again in document mode, from the beginning of the file.

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by Thomas Howe

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Many of you are faced with an awesome choice. You have to decide which word processing program to buy. This can influence which computer you choose, because many computers come with one or another program "bundled" with it, and you must choose. An additional problem is that some dealers are "married" to one program or the other. How can you avoid making the wrong choice? Since most people want to write with their computers, I will offer some suggestions about two major writing tools.

Perfect Writer (Perfect Software, Berkeley CA) and WordStar (MicroPro International, San Rafael, CA) are the two most commonly bundled writing tools you are likely to confront. WordStar is the one most dealers seem "married" to, usually because they already are used to it. Perfect Writer is the upstart barging in to take us in other directions. Which should you choose?

I use both packages extensively and switch from one to the other as needed for various writing jobs. Experience has shown that both packages have tremendous strength and flexibility. Both are quite fine and represent high quality programming. I will compare them in several major areas so you can choose for yourself. Your final choice depends mostly upon what you intend to do when you get one home.

WordStar's Special Features

WordStar shows its remarkable features as soon as you start using it. You notice the on-screen formatting (with automatic hyphenation, etc.) right away and begin to relax, knowing that what you see on the screen is what you will print. If you want something special in the way of page format, it takes shape before your eyes as you design it. When you want fancy things like boldfacing or superscripts, you simply insert the commands. With some computers, many of these features will display on your monitor as different colors or different shades, making them easier to recognize. You may also take advantage of your printer's ability to change type faces in mid-stream (handy for emphasizing).

Page formatting is accentuated in two ways. The on-screen formatting mentioned above allows direct manipulation of your text. "Dot commands" alter the canned page parameters and allow insertion of special headings and footings. Dot commands are used to notify the computer of changes in type size or line spacing. This is a more subtle way of defining how WordStar will format your pages.

The combination of dot commands and on-screen formatting allows you to decide *exactly* how your finished work will look before you print it. This is WordStar's strongest feature, truly a tough act to follow.

WordStar is especially kind to users by displaying a menu at the top of the screen to remind you of the commands. You needn't worry if you forget one (there are over a hundred and twenty five of them). They are all a key stroke away. When you enter commands, the menu itself can change to guide you through multiple-keystroke commands you may have forgotten. As you learn the system, you can shrink the menu and free more of the screen for editing. Even the dot commands are described in detail with suggestions for their use.

WordStar has been around for at least three years. It has been tortured and pushed around by finicky secretaries and typists. MicroPro has very graciously received input from users and made many improvements in an effort to market a better product. This has resulted in the release of many new versions. The current version (3.3) is significantly better than it's predecessor.

Version 3.3 represents a significant improvement over version 3.0 in terms of documentation. The 3.3 manual is well written and illustrated. The new training guide takes you from the level of a rank beginner to that of an experienced writer in 20 lessons. It coaches you through most of the commands and teaches you to manipulate words and paragraphs.

The installation process is much easier with version 3.3. Where you once had to resort to user un-friendly tools like DDT to patch in printer and terminal codes, version 3.3 presents you with a menu in English that sort of explains itself. Installation is still a technical process, but it is much friendlier. The manual is helpful, though not complete.

With these lessons, anyone with a little patience should be able to learn how to write WordStar in a short time. You can also spend money on training seminars or private lessons, but many can learn by just having patience and "playing" with it. I had fun learning WordStar on my own — learning each function was a confidence booster for learning the next one.

WordStar is the key part of an integrated package of programs available from MicroPro. You may choose to purchase, as options, several other programs such as MailMerge, SpellStar, and StarIndex to form a complete writing package.

If you want the complete package, you should consider the "Professional Package" containing all these at a price far less than *a la carte*. (I have seen this one for under $400 in mail order advertisements.) If your needs are more sophisticated, you can incorporate this with MicroPro's data base manager, calc, and financial planning sets. You can choose from several WordStar add-ons available from other software vendors as well.

What Is So Special About Perfect Writer?

Perfect Software is the upstart company that is taking the market by storm with an aggressive marketing plan. At least eight computer-makers include it in the package with their machines. The competition is fierce for this type of sale and Perfect Software has done well, primarily among new companies.

There are several things that make Perfect Writer special. It does many things not possible with WordStar. Although Perfect Writer is limited in the size file it can edit, it is in many ways more powerful.

Perfect Writer will allow you to pull as many as seven different text files into memory at once. You are then free to move among them at will, moving text and editing as you like. You can combine documents or split them apart easily.

This flexibility is possible because of a scheme known as virtual memory. Your program disk contains a rather large file called "PW.SWP" that is used as a storage bin for any text that overflows the machine's memory.

Perfect Writer goes one step farther by allowing you to split the screen. You may place two different documents on the screen at once if you like to do comparisons and special manipulation of text. This feature is handy, though not essential. Perfect Writer will move large blocks from one document to another just fine without it.

The command structure of Perfect Writer is mnemonic. This means that the keys you push match in some way the sound of the word describing the action or the location you want. For instance, Control-*T* Transposes characters and ESCape-*P* moves the cursor to the Previous beginning of a paragraph.

NOTE

The Control key is sometimes spelled CTRL or CNTL on keyboards, or called ALT MODE. The ESCape key

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is usually spelled ESC. The RETURN key is usually spelled RETURN, RET or CR (carriage return), or called ENTER.

The editing commands are on two levels. Those which use the Control key are basic; the ones using the ESCape key are more powerful. Usually, there is a parallelism. Control-*T* is matched by ESCape-*T* which transposes words. Seventy-nine editing commands are in the current version (1.03). The commands are easily learned with the assistance of the reference card. You will find that you will normally use only about half these commands.

When you buy Perfect Writer, you are given a lessons disk that will walk you through the major portion of the program step by step. The lessons are interactive — you are told to actually use the commands and see what happens. By practicing them over and over, you teach yourself how to use the program. One tip: print out the text on the lesson disk for a reference as you work through the lessons, to avoid getting lost. (This can be done with any printing utility that may come with your operating system.) The lessons are good because you learn in the best way — by using the system.

Page formatting is another animal entirely. The luxury of on-screen formatting is not developed nearly so well as in WordStar. The bulk of the formatting is done in a separate operation *after* you are done writing. You obtain all your printer features by insertion of formatting commands in the text. The placement of these commands is usually critical, though not always clearly explained. The order in which you "nest" the commands usually has a dramatic effect on the printed page.

A programmer would compare the entire printing operation to the old C-BASIC2 pseudo-compiler. First, you write your text (source code). Then, you format it (this is the compiler operation). Then you can print the formatted text (like using a run-time interpreter). This is very powerful and allows many options.

Perfect Writer can utilize up to 15 type faces. These are programmed into a data file and called up by name when you format your work. With a dot matrix printer, it is possible to use all the type sizes available, including proportional fonts. This is especially nice if you write letters, because proportional fonts usually have a much sharper appearance. The right justification is almost true in the proportional mode (it comes within one character of being correct).

Perfect Writer is limited to about 256K maximum file size, depending upon the computer. Using a specially configured disk on my Kaypro II, I work with files up to about 150K. (You must have an installation program called PWCONFIG.COM to alter the swap file size. It is not usually provided with the software.) This could present a problem for programmers with lengthy source code, but should not bother book writers who can divide their work into chapters.

Perfect Writer is part of an integrated software package. There is an optional spelling checker (Perfect Speller) that is less than satisfactory — it misses some common misspellings such as doubled consonants. You may also use Perfect Writer with Perfect Filer to manage your mailing lists. There is a limited integration with Perfect Calc, the spreadsheet program.

Perfect Writer users do not have to buy any other programs to produce footnotes, end notes, tables of contents, or indexes. You need only include a few simple commands in your text for the computer to do the work of placing the footnotes at the bottom of the page or at the end of the paper.

For example, footnotes are generated by the command *@NOTE(footnote text)* command, and the *@INDEX(text)* command creates an index listing. Perfect Writer will remember all your chapter titles, etc., and build your table of contents last. This is a great work saver for students and researchers.

Toe to Toe Comparisons

There are functions where one program is superior, and functions where the other is. I will capsulize these for you.

Formatting

If you are nervous and must know ahead of time what the printed copy will look like, WordStar has the advantage with its complete on-screen formatting. Perfect Writer does all its formatting separately from the editing portion of the program, making it a little more difficult for beginners to obtain what they want in print. Once you are used to it, it can actually do more.

Cursor Movement

The cursor controls in WordStar are a little funky because they require you to work harder to move around in your text. There are too many commands and you have to learn them in terms of their position on your keyboard. Perfect Writer has only 12 mnemonic cursor commands that take you anywhere in your text quickly. The only drawback common to both is that scrolling to the middle of a long document is tedious.

Moving/Deleting Text

Perfect Writer is the winner here. Because there is less "monkey motion" involved, it is a simple task to move text around. One command will mark a paragraph. The biggest bonus is that you can restore immediately anything you accidentally delete, from characters to whole pages. This is a valuable safety feature.

Multiple Documents

Perfect Writer is the winner hands down. WordStar will not handle multiple documents and inserting an extra document into your text is a funky procedure. WordStar allows only one file to be open. If you want to include part of another document in your text, you must insert the entire file and delete the unwanted parts, or copy the portion desired into a third temporary file, then copy the temporary file into your working text file.

Perfect Writer lets you move any portion of a document from one file to another at any time.

File Size

WordStar can undoubtedly manage a larger file than Perfect Writer. Perfect Writer is limited by the size of its swap file (maximum 248K of virtual memory on disk; 64K is the normal size) where WordStar is limited to 8 megabytes under CP/M and claims to have no limit under other operating systems.

However, WordStar's documentation contains things that cause me to worry. Over and over, there are warnings (expressed in dire tones) about the dangers of scrolling backwards or searching backwards through *long* files. The manual seems to indicate that if you do this (they don't say how long *long* is) without saving your work on the disk first, you could lose material.

Perfect Writer doesn't have this problem. The only way to lose anything is to over load the virtual memory file by trying to stuff too much material into it.

Saving Your Files

Perfect Writer wins on this one. The process is simpler and always leaves the cursor where it was when you stopped to write your work on the disk. WordStar requires an extra command (Control-*QP*) to return the cursor; otherwise you end up at the start of the file every time. This is a problem with long files and an aggravation with short ones. Perfect Writer encourages you to save your work frequently (a very good practice). WordStar is too clumsy to want to do this often enough.

Installation

WordStar has the edge here. The manual is reasonably clear and does a good job of walking you through installation. It does not take long to figure out how to make it run your printer.

Perfect Writer, on the other hand, is a bear to install to a printer. The documentation is poor on this point. (I took several months to figure it out; now I have written a 200 page book to explain these mysteries.) Once installed, Perfect Writer is actually easier to use.

Documentation

WordStar has the best manual of the two. The teaching guide (mentioned previously) is superb. The manual is clear, simple, and tells you almost everything you need to know.

Perfect Writer's manual is much improved from earlier editions, but still lacks adequate information on installation. They need to spend more time explaining the interactions of the document formatting commands. Simply reversing the order of two commands often has drastic results.

Product Support

WordStar leads the pack here, although many have complained that MicroPro won't answer questions — they refer you to your dealer. That's because the product has been out for so long that that most dealers can answer your questions. If you still can't get answers, try MicroPro's tech support personnel in San Rafael, CA for advice.

Perfect Software is so young that their tech support department is still developing. They are gaining ground fast, and you can call them in Berkeley if you need to. They prefer, however, that you try it on your own with the help of the manuals first; call them if you have done this and are still stumped. Also, I know very few dealers who have figured out the programs well enough to be authoritative. This makes it a little tougher.

The Bottom Line

What this all boils down to is that you have to evaluate your own needs *before* you make a decision (and leave room to change your mind later). What kind of writing do you expect to do? Are you going to try to teach an entire office how to run it? Are you willing to invest a little extra in set-up costs and training or can you "go it alone", thrashing it all out for yourself? Just how important is fancy printing?

It is time to forget the notion of picking the "best" from these two word processing programs. They are both very fine and well thought out. Both excel in certain areas. You have to decide what is important.

If I were managing a large office where correspondence was the primary product, I would probably choose WordStar. It is unmatched in its ability to handle mail. You can easily set your letter style to agree with your company letterhead. Another good reason to use it is that any temporary help you hire will be more likely to know WordStar already, thereby eliminating the need for extra training and user incompatibility.

I would also recommend WordStar if your primary concern is how fast you can be up and running. It can be quickly installed for your printer. You can become proficient with WordStar faster and easier.

Perfect Writer is worth the effort if you have the time. It is more versatile and powerful than WordStar. If you have to write term papers where footnoting is important, then you might prefer Perfect Writer's built in footnote commands so you don't have to buy any more software. With a few extra commands, your table of contents and an index will be created by Perfect Writer.

Perfect Writer excels if you have to re-arrange the contents of your text file frequently or if you want to move things from one text file to another (or chapter to chapter). It also allows you to string together all the files on a disk for printing in one unit, either as chapters or simply run together to form one coherent document. This batch printing is handy for writing long reports or even books. I used this feature to assemble a 210 page book this past summer and it worked well.

If I were forced to choose only one program, my choice would be Perfect Writer. Though it is more trouble to learn, I can do more with it. I obtain the maximum usage of my printer capabilities and produce nice manuscripts. I can do anything I want with it.

I am glad I have *both programs*, because I have many applications where WordStar is my program of choice.

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CP+ ™ and The Organizer®: Menus For CP/M Operations

CP+ and The Organizer Compared: Both Claim To Make CP/M "Friendly" and More Useful

by Kelly Smith

Menus are incorporated into systems to provide simple and logical choices easily to someone who is untrained in using the system. A well-designed menu lets you choose an item from many items arranged in logical, easy to read list.

CP+ from Taurus Software, and The Organizer from The Information People, are new competing software products that provide menus for common CP/M operations. They purportedly turn the CP/M 2.2 operating system into a friendlier environment for the non-technical or novice user.

Both programs relate directly to the user and mediate commands through to the operating system. They are called "shell" programs (named loosely after "shell" programs that run on UNIX systems and communicate from the user to the operating system) because they "wrap themselves around CP/M" and hide its arcane language behind a simpler, menu-type set of selections. No longer do you have to explain to beginners complicated commands like *PIP LST:=B:ARTICLE.TXT [EZUT8P60]* ↩ !.

The user sees a menu of available operations and simply chooses the one he/she wants. The operating system receives a syntactically correct command that is generated automatically in response to the user's single keyboard entry of the selection menu.

Overview

CP/M is the most widely used disk operating system in the world of eight-bit microcomputers, but obviously not everyone finds it particularly congenial or easy to understand. That's why there is an ever-increasing market for magazines such as *User's Guide* and numerous books explaining the operation of CP/M.

For the beginner, especially one who would like to use the computer for meaningful work and not for training as a computer specialist, learning CP/M can become a formidable task.

To use CP/M properly you need to learn how CP/M organizes and manipulates files. In any application, program files and data files must be shuffled from disk drive to disk drive, and copies must be made. To use CP/M directly, you need to know how to use the built-in commands (like DIR, REN and ERA) and the supplied utility programs (like STAT and PIP). CP/M is not very forgiving nor polite when you mistype a command — it simply repeats what you typed, with a question mark.

For example, to copy a file from one diskette to another with CP/M, you have to understand that copying files is performed by the Peripheral Interchange Program (PIP.COM on your diskette). You must also know what options are available (or appropriate, or required) for PIPing the particular file, and what the specific syntax is.

Here's the syntax for PIP:

```
PIP d:dest.typ = d:source.typ [option(s)]
```

The first problem is that the "destination" of the copy, *desfile.typ*, seems to be on the wrong side of the equal sign.

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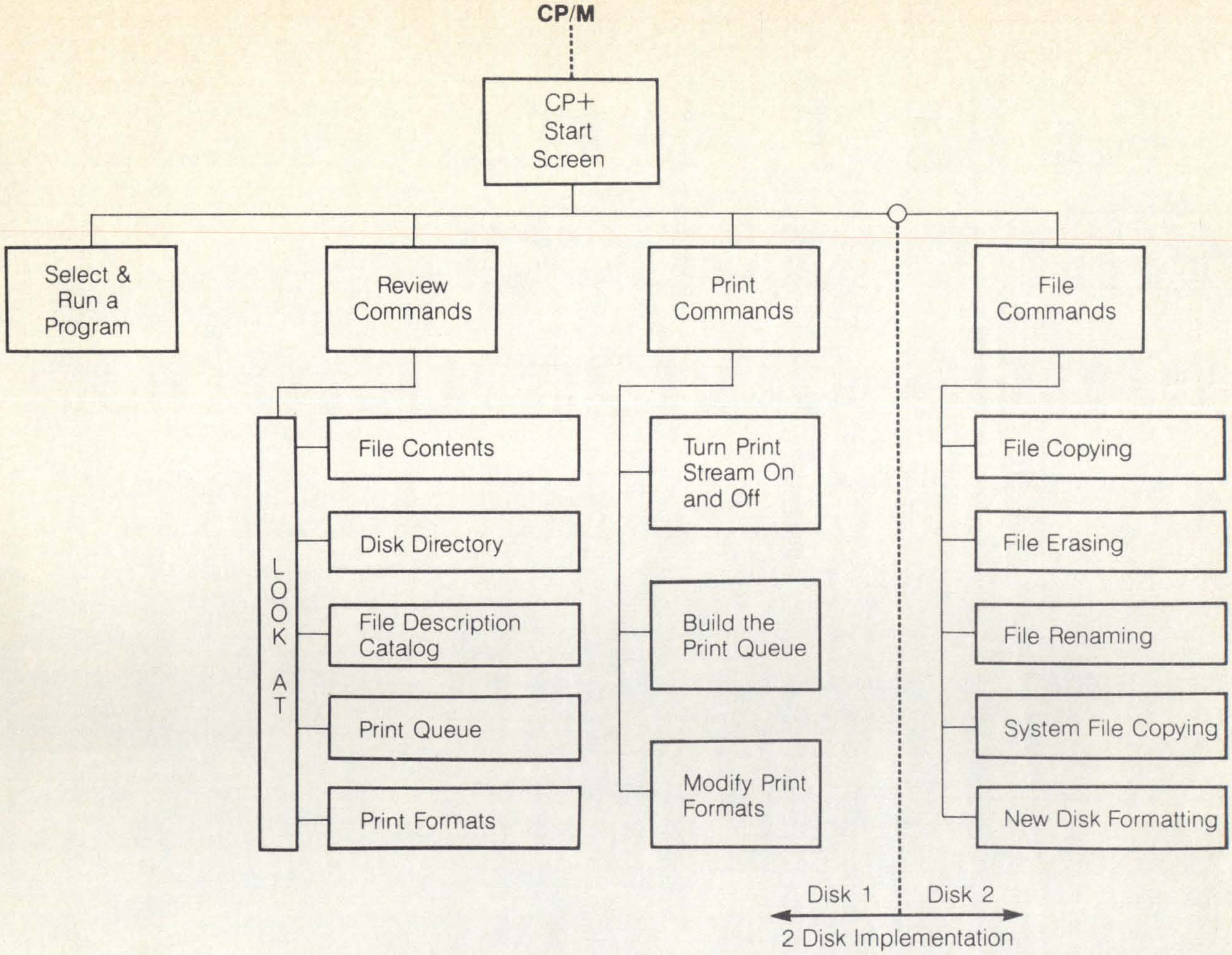
CP/M
CP+ Start Screen
Select & Run a Program
Review Commands
Print Commands
File Commands
LOOK AT
File Contents
Disk Directory
File Description Catalog
Print Queue
Print Formats
Turn Print Stream On and Off
Build the Print Queue
Modify Print Formats
File Copying
File Erasing
File Renaming
System File Copying
New Disk Formatting
Disk 1
Disk 2
2 Disk Implementation

The final challenge comes in selecting one or more of the 22 options that may be required, depending on which device you intend to be the destination, and which device you intend to be the source.

If you fail to use the correct syntax, you're likely to be rewarded with a very cryptic error message that is hardly a clue to what has gone wrong in one or more of the 22 possible options. Even more confusing for the novice is understanding when an application is in control rather than CP/M, and vice-versa.

CP+ and The Organizer To the Rescue

Both CP+ and The Organizer make it possible to perform everyday CP/M operations without understanding precisely what CP/M commands

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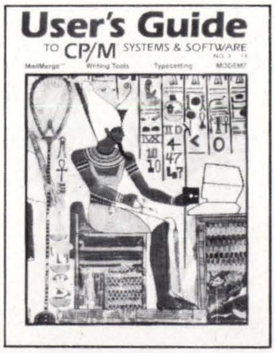

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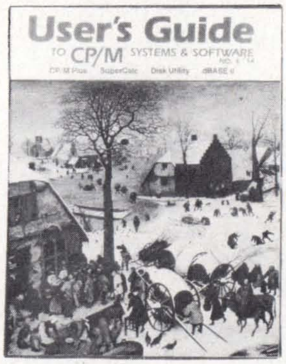

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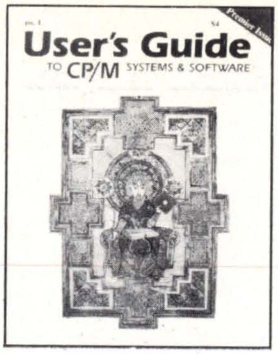

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are used. All you supposedly have to know is what you want your computer to do for you.

For example, if you want to copy a file, you pick the "copy file" choice, and the "shell" program *asks you* for the appropriate disk drive and filename. If you need further help understanding the entries in the menu, type a question mark and the either program can supply explanations. No more searching through manuals that are sometimes available (if only you could remember where you last put them...).

These menu-driven selection programs LET you to divide your programs into functional groups accessed through separate menus of related (or interrelated) programs. A logical grouping of programs into menus would make system operation easier to learn.

For example, you might want one group of menus to your include WordStar, Spellstar, and text files. Another might have DataStar, CalcStar and the FormGen files, and another may have utilities for software development such as WordMaster, MAC, and LOAD, etc., and finally a language group that might have PL/I, Pascal/MT+, CBASIC.

These program could be selected using a variety of menu selection schemes available (even more so on large capacity hard disks).

Grouping related files together on a menu in this fashion helps you organize system operations. You are given an explicit reminder of what options are available on your system to perform any given task within the menu (or subgroups) of menus available on your disk.

Organizer allows you to arrange your program menus into a hierarchy, where any entry on a given menu can invoke up to 14 sub-menu "nestings," or even menus of sub-menus of (you guessed it!) sub-sub-menus.

```
A>ORGANIZR<return>

IP REGISTRY #: 00000                          USERS GUIDE - NOT FOR RESALE
==========================================================================
V3.2              Office System 80 Function Selection            User # 0
==========================================================================

     < 1> - Accounting System.........(AP, AR, GL, PR,  Job Cost,  Invoices)
     < 2> - Communications............(Connect to  Master, Timeshare, Phone)
     < 3> - CP/M Help Menu............(Commonly-used CP/M Cm'ds & Utilities)
     < 4> - Data Base System..........(Relational Data Base in Command Mode)
     < 5> - Mailing System............(MailSort edit, select/sort NAD file )
     < 6> - Maintenance Menu..........(Prepare New Disks,  Copy Files, etc.)
     < 7> - Print Update..............(Print latest notes on  The Organizer)
     < 8> - Word Processing...........(Wordprocessor, Autotype, Spell check)
     < 9> - Finished with this function

                      Enter selection # in <3 >


IP REGISTRY #: 00000                          USERS GUIDE - NOT FOR RESALE
==========================================================================
V3.2                      CP/M Commands & Utilities                User # 0
==========================================================================

       < 1> - CONFIGUR Utility...........(Set  ptr/comm ports,  I/O, start cmd)
       < 2> - DIRectory Command..........(Display  one or more files on a disk)
       < 3> - Disk COPY Utility..........(Copy entire disk, same fmt & density)
       < 4> - ERAse Command..............(Erase one or more files on  any disk)
       < 5> - File COPY Utility..........(Copy individual file  w/error checks)
       < 6> - FORMAT Utility.............(Prepare a new disk for use in system)
       < 7> - MENU DOCument Utility......(Print  copy of menus, commands, help)
       < 8> - REName Command.............(Rename a file to new name - same dsk)
       < 9> - SAVE Command...............(Save n memory  pages  to  disk  file)
       <10> - STAT Utility...............(Display, Change  attributes of files)
       <11> - SYSGEN Utility.............(Copy CP/M to use as a system disk -A)
       <12> - TYPE Command...............(Display one or more text files - CRT)
       <13> - USER Command...............(Change user # for separate directory)
       <14> - Finished with this function

              <ESC> returns to Main Menu        Enter <?> for Help

                          Enter selection # in <2 >
```

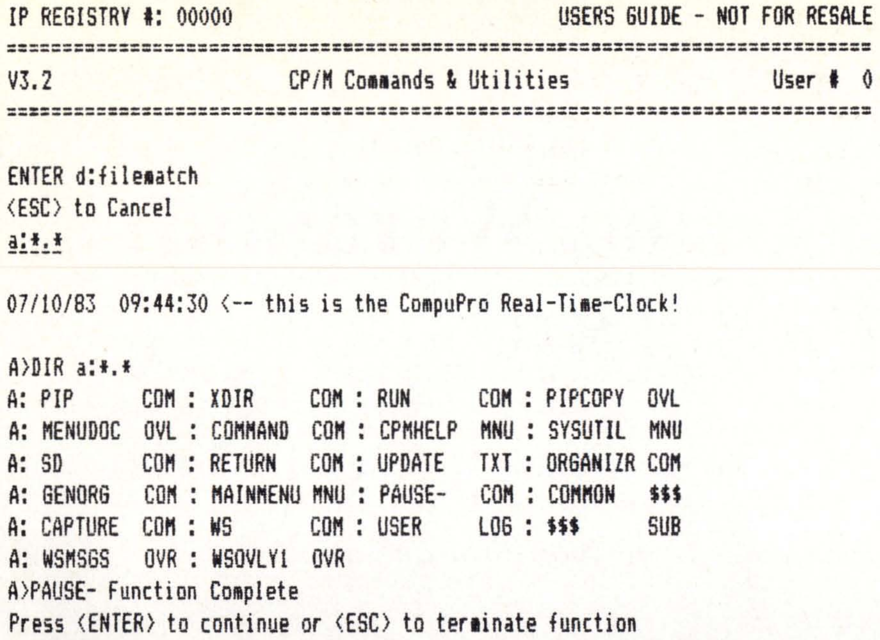
Paying the (Performance) Piper

As might be expected, when using these programs you "pay the piper" for the added convenience they provide in overall performance and disk space.

Extra disk space is required on your system disk, as well as extra disk accesses to display all of the messages contained within the menus (ones provided or generated by you), and to execute any additional CP/M-80 commands. Also, it takes much more time to update the console display (most menus will fill the screen!).

There would appear to be no particular speed advantage of one "menu program" over another (all programs were run on a CompuPro 8/16C system with either CP/M-80 or MP/M-II, and sometimes, with two users). However, using these programs *always added two to five seconds* of time to most applications that were being used. This might be a small penalty to pay to use CP/M without having to "know" it.

I also installed CP+ on an Osborne 1 computer (183 kilobyte double density disk), with similar performance sacrifices (especially in disk storage). CP+ really needs a hard disk environment. It leaves only 22 kilobytes of disk



```
IP REGISTRY #: 00000                           USERS GUIDE - NOT FOR RESALE
===========================================================================
V3.2                      CP/M Commands & Utilities                User #  0
===========================================================================


ENTER d:filematch
<ESC> to Cancel
a:*.*

07/10/83  09:44:30 <-- this is the CompuPro Real-Time-Clock!

A>DIR a:*.*
A: PIP      COM : XDIR     COM : RUN      COM : PIPCOPY  OVL
A: MENUDOC  OVL : COMMAND  COM : CPMHELP  MNU : SYSUTIL  MNU
A: SD       COM : RETURN   COM : UPDATE   TXT : ORGANIZR COM
A: GENORG   COM : MAINMENU MNU : PAUSE-   COM : COMMON   $$$
A: CAPTURE  COM : WS       COM : USER     LOG : $$$      SUB
A: WSMSGS   OVR : WSOVLY1  OVR
A>PAUSE- Function Complete
Press <ENTER> to continue or <ESC> to terminate function
```

Figure 1. *The Organizer menu system: the main menu, followed by a CP/M help menu and the execution of the directory command.*

space on the Osborne 5.25-inch disks for application files.

The Displays

The CP+ menu display is much more elaborate than Organizer's. The programmers at Taurus Software (CP+) used almost all of the special video display attributes that are available (at least in my installation on a Televideo 950 terminal)... to the point of distraction, for me at least.

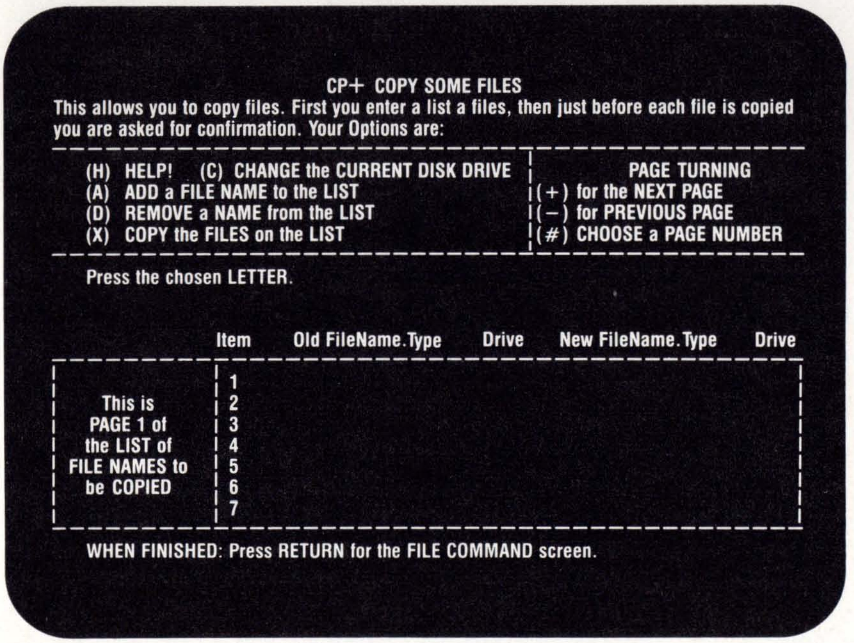
The amount of confusing "razzle-dazzle" of reverse video, blinks, and bells, constantly confound my attention with just too many thing going on. Of the two, Organizer seemed to minimize the "Las Vegas Strip" display on my TeleVideo 950 terminal, to an acceptable degree.

Organizer requires and uses only one unique-to-each-terminal dependent function: clear screen. No frills, just a nice simple menu.

CP+ displays are shown here in glorious black ink on white paper, without the fancy "pyrotechinques" of the screen. The menus are rather simple when shown in print; however, there are a lot of menus — we couldn't print them all!

Organizer's menu is shown in the photo running on a Zenith system. Figure 1 shows listings of Organizer's main and subsequent menus.

Both CP+ and Organizer hide most of the normal interaction that takes place when you operate CP/M "manually". Most system messages do not appear on the menu. Unfortunately, Organizer has a tendency to display the "internals" of CP/M activity as it occurs. This is no major problem, as long as you recognize that this is "normal" CP/M activity, *not* part of the Organizer menu display.



```
                          CP+ COPY SOME FILES
This allows you to copy files. First you enter a list a files, then just before each file is copied
you are asked for confirmation. Your Options are:
-------------------------------------------------------------------------
  (H) HELP!   (C) CHANGE the CURRENT DISK DRIVE  |        PAGE TURNING
  (A) ADD a FILE NAME to the LIST                |(+) for the NEXT PAGE
  (D) REMOVE a NAME from the LIST                |(-) for PREVIOUS PAGE
  (X) COPY the FILES on the LIST                 |(#) CHOOSE a PAGE NUMBER
-------------------------------------------------------------------------
  Press the chosen LETTER.

                 Item   Old FileName.Type   Drive   New FileName.Type   Drive
-------------------------------------------------------------------------
|               | 1                                                      |
|    This is    | 2                                                      |
|   PAGE 1 of   | 3                                                      |
|  the LIST of  | 4                                                      |
| FILE NAMES to | 5                                                      |
|   be COPIED   | 6                                                      |
|               | 7                                                      |
-------------------------------------------------------------------------
  WHEN FINISHED: Press RETURN for the FILE COMMAND screen.
```

CP+ file copying menu (courtesy Taurus Software, CP+ User Guide).

Conclusion

Of the two menu-driven "shell" programs, Organizer wins in my opinion primarily because the display format is simpler. However, this is one "hackers" opinion.

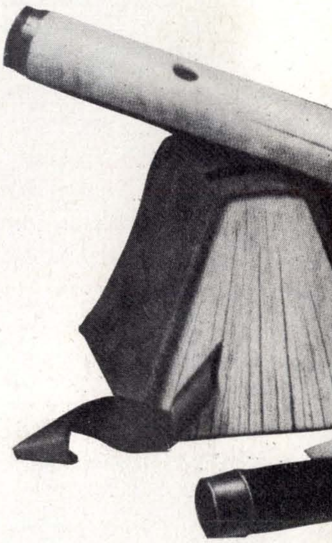
I have been "hacking" in CP/M systems for almost six years... would I use these programs? Well, no. I like the stark, terse, simplicity of CP/M at the direct command level. *User's Guide* provides all the information needed to use CP/M at the command level, presenting quick information *and* some details on powerful options that are used infrequently. CP/M can actually be easy to master after some hands-on experience.

CP+ is available from: Taurus Software, 870 Market, Suite 815, San Francisco, CA.
The Organizer is available from: The Information People, 443 Hudson Avenue, Newark, OH.

A Guide to Using WordStar: Part Two

Quick editing, marking places, copying blocks, moving sections of text, finding and replacing words, file transfers and more advanced WordStar operations.

by Tony Bove & Cheryl Rhodes



Part one of this WordStar tutorial (*User's Guide* #2) shows how to use WordStar to write, edit and save your text, erase text, move the cursor, insert and delete lines, justify lines to the right margin, change margins and prepare your text for printing.

This might be enough to know to use WordStar to write, edit and print documents, but there are more advanced operations that can dramatically increase your productivity.

Get Used To WordStar

The best way to use WordStar is to type as in typing class, learning touch-typing. Most of WordStar's editing and cursor movement commands are within easy reach of the "ASDF-JKL;" keys — the resting place for touch-typists. Get used to moving the cursor up and down lines, and from one end to the other.

Type into the middle of sentences whenever you need to insert something. Use Control-*G* (delete character) and Control-*T* (delete word) as often as necessary. Be careful with Control-*Y* (delete line); get into the habit of using Control-*Q* then *Y* (erase to end of line). Type Control-*B* to re-form your paragraph after the insertions/deletions.

You may be used to typing two-letter commands in this manner: typing the Control-key command, then searching the menu for the option, and typing the letter of the option. As you begin to remember often used commands, try typing two-letter commands quickly: hold down your Control key and type both letters, one after the other. This method avoids the time wasting menu display.

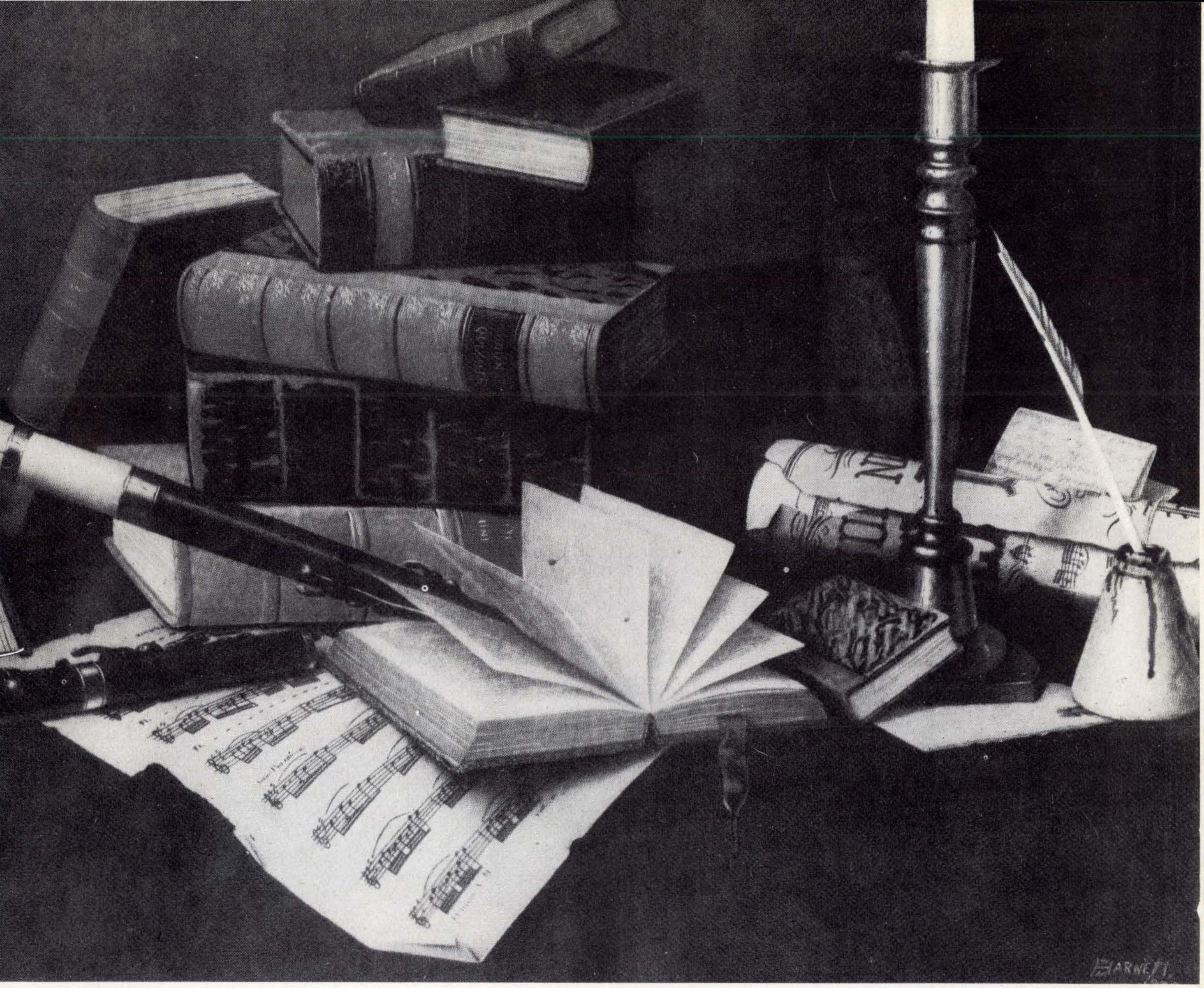
If you make a mistake in typing such commands, simply hold down your Control key, type *U*, then press your ESCape key. This is the universal "back-out of a menu" command.

Typesetting Conventions

Throughout this article and this issue, we use *THIS typeface* to show what you should type at your keyboard, with the special symbols ↑ for the Control key (CTRL, CNTL or ALT on some keyboards), and ↩ for the RETURN key (RETURN, ENTER, RET, CR or Carriage Return on some keyboards).

Since computer activities nearly always involve typing, you'll see *THIS TYPEFACE* used a lot, especially in all upper case letters (used for most commands). You may not have to type in upper case — we use it to emphasize commands. We also use *lower case* for text in text files and for text that varies with the specific command (e.g., *DIR filename* tells you to type the *DIR* command with any filename).

We also use This Typeface to show messages displayed by the system or by programs; also to show old text in a file where new text has just been typed (new text is in *this typeface*, of course).



Organize Files By Name and Extension

As soon as you start using WordStar seriously, you will want to develop your own set of file naming conventions, conforming to standard conventions for CP/M or PCDOS file naming.

Your naming scheme should reflect your needs, but should also match wherever possible the common conventions already widely in use. Most conventions involve the use of filename extensions — the sometimes-optional three characters following the period.

CP/M filenames can have up to eight primary characters, with three extension characters following a period. The three characters are sometimes called the *file type*. The characters in filenames can be letters, digits, and symbols other than commas, periods, question marks or asterisks.

Here are some common uses of filename extensions:

-file.T

Temporary text file (work in progress). The leading dash places the filename at the top of alphabetical directory listings, where it is easily noticed.

file.TXT

Finished text file (usually ready to be printed). We use file.UG6 to denote a finished article for *User's Guide* issue six.

file.TYP

Finished text file with typesetting codes, ready to be typeset.

file.BAK	Backup file created by WordStar and other programs to hold a copy of the file as it was before you started editing.
file.TOC	Table of contents for a book or manual.
file.IND	File holding an index to a book.
file.DOC	Documentation on how to run a program, or operating procedures.
-BLK.1	Temporary blocks of text to be read into another file. We use BLK.1, BLK.2, etc., to hold consecutively-saved blocks of text.
file.TQT	A compressed text file (processed by the Squeezer utility). All "squeezed" files have a "Q" as the middle character of the three-character extension.

Quick Editing

Every WordStar user has his or her own style of quick editing. When teaching beginners how to enter text for the first time, we show them how to type as fast as they can, and how to use the DEL (delete) or RUBOUT key to move back and correct errors.

There are faster ways to correct an error, but for some reason most people feel comfortable using the DEL (RUBOUT) key. Perhaps it is because moving the DEL key backwards reminds them of correcting typewriters. Although they have to re-type whatever they erase while moving back to correct the error, they can correct an error and re-type the words quickly with WordStar.

The easiest editing trick to learn is Control-*A* You can move backwards by word (using Control-*A*) so that correct words already typed do not have to be typed again. Some people also like to use the Backspace key (or left-arrow key) to move backwards by character, delete the character in error, and insert a new one.

For fast deletions, use Control-*T* to delete words. This command (abbreviated ↑*T*) also deletes the WordStar end-of-line character to join lines. Control-*Y* deletes entire lines, but can be dangerous (you cannot "undo" it — you can only abandon the editing session and re-edit the file to retrieve the deleted line, or rename the ".BAK" file and retrieve it from there).

Control-*QY* erases to the end of the line, but can also be dangerous — especially if you cannot see the end (you have a + in the rightmost column, showing that more text sits on the line than your screen has room to display). Control-*QY* will delete forward until it finds an end-of-line character.

One frequently asked question: how do you change an existing single-spaced file to double-spaced?

If each paragraph is separated from the next with a blank line, you're all set — skip to the next paragraph. Otherwise, search for the beginning of each paragraph (see "Find Text" later in this article), and add a blank line between each paragraph.

Starting at the beginning of the file (move the cursor with Control-*QR*), set the line spacing to double by typing the Control-*OS* command, followed by *2* (*1* is for single-spaced). Type Control-*B* a few times. As you type Control-*B*, you'll notice that paragraphs are re-formed to be double-spaced.

Type Control-*QQ*, then Control-*B*. WordStar will repeat Control-*B* commands until you stop it by typing a space. If WordStar is moving too slow for you, type a *1*; if too fast, type a *9*. This operation causes every paragraph in the file to be re-formed to double-spaced lines.

Bringing Edited Text Into a New Document

A frequent writing task is *boilerplating* — using the same text over and over. Examples:

- Using the same copyright notices, trademark notices, legal paragraphs, etc. in different documents.
- Using the same text in different letters, memos, electronic messages, etc.
- Copying an outline into a new document workspace, in order to write the document using headings from the outline.
- Endless possibilities of copying text from one file to another, to work on the text without changing the original file.

All of these tasks are accomplished using the same technique: *reading a file* into the document you are editing.

You start by creating the master file — the text that deserves repeating. Select a document to edit by typing *D* from the "no-file" menu. We use the name *MASTER.TXT*:

```
NAME OF FILE TO EDIT? MASTER.TXT↵
```

Type whatever name you choose, followed by RETURN (↵), and WordStar should display NEW FILE and a blank workspace.

Type the text to be used as boilerplate text in other files. This could be the first version of a series of letters, or the copyright and trademark notices, or legal paragraphs, or chapter outlines, or whatever you are using as a boilerplate.

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This could be a legal paragraph used in several different
contracts you are writing. On the other hand, it could be
one of several paragraphs in a letter you are writing, to be
used again in the next letter. The file read (↑KR) command
makes it easy to bring text from any file into a WordStar
text file. ↵                                                  <
                                                              <
This could be a trademark® notice. ↵                          <
And this could be a copyright © notice. ↵                     <
                                                              <
A. This Headline ↵                                            <
      1) Part of an outline ↵                                 <
      2) Used again in table of contents ↵                    <
```

Save your master file (↑*KD*), and start your next document as a new file by selecting the *D* option and naming the file. We use NEWFILE.DOC for our new document:

```
NAME OF FILE TO EDIT: NEWFILE.DOC ↵

NEW FILE
```

You should have a blank workspace for writing new text. To bring the master text into this file, type Control-*KR* (↑*KR*). WordStar should display:

```
NAME OF FILE TO READ? MASTER.TXT ↵
```

Type the name for the file containing the original text, and press RETURN. In our example, the text from the previous example fills the workspace of our new document NEWFILE.DOC.

You can edit the text any way you wish. The original MASTER.TXT file doesn't change unless you edit it directly. You can also read another copy into your new document as easily as the first: type Control-*KR* (↑*KR*) again, and this message appears:

```
NAME OF FILE TO READ?
```

WordStar has one trick up its sleeve — it can remember the name of the last file you read. Rather than type the name, type Control-*R* (↑*R*) to restore the last name you used, then press RETURN:

```
NAME OF FILE TO READ? ↑R  MASTER.TXT ↵
```

You could do this operation over and over to read copies of the text into the new document; however, to make copies of a section of text within a document, WordStar has a better way.

Moving or Copying Blocks of Text

To move or copy a word, a line, a paragraph, or a set of paragraphs to another place in your document, you first *mark* the section of text as a *block* with the ↑*KB* (beginning of block) and ↑*KK* commands.

To mark a section of text, move the cursor to the beginning and type Control-*KB* (↑*KB*). WordStar displays the beginning marker (⟨B⟩). Move the cursor to the end of the section and type Control-*KK*, and the entire section should appear to be in a block (usually highlighted, reversed or dimmed characters).

In our example we show a block of text with markers:

```
⟨B⟩ This could be a legal paragraph used in several differ-
ent contracts you are writing. On the other hand, it could be
one of several paragraphs in a letter you are writing, to be
used again in the next letter. The file read (↑KR) command
makes it easy to bring text from any file into a WordStar text
file.                                                         <
⟨K⟩                                                           <
                                                              <
```

Product Announcements...

Continued on page 76

With thousands of computer products announced this year for the IBM PC, and thousands more already available for CP/M systems, we cannot cover every product, nor do we want to subject our readers to such lengthy product announcements. We pick only the ones that interest us; if you want more product announcements, there are many other computer magazines that provide them.

The products announced here have not been tested or analyzed; in fact, they may not yet be available. Products received by us for review purposes are included here, with a mention of the fact that we received it. We cannot publish an article about every product we receive, but we try to evaluate them for product comparisons and articles about applications involving them or their competitors.

If no system is specifically mentioned, assume the product is hardware or software compatible with CP/M-80 systems.

The Radio Shack Model 4P is transportable, weighs 26 lbs., fits on luggage racks in planes, has a nine-inch screen that can display high resolution graphics, and runs CP/M Plus.

FREE INFORMATION

User's Guide Reader Service Card

Each advertisement and product announcement in this issue has a reader service number. To receive mail from the manufacturer, simply circle the same number on this reader service card, and drop the card in the mail. Your name and address is sent on to the appropriate manufacturer, who sends the information.

The service helps you get detailed information about products you may want to purchase. *User's Guide* does not sell or recommend products associated with this service.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Please complete:

1. Classify your experience with computers: Novice ☐ Intermediate ☐ Advanced ☐

2. Which computer to you use?
☐ Osborne
☐ IBM PC
☐ Apple
☐ Heath/Zenith
☐ TeleVideo
☐ Radio Shack
☐ Kaypro
☐ CompuPro
☐ Morrow
☐ Xerox
☐ S-100
☐ DEC
☐ Sanyo
☐ ____________________

3. Do you have: ☐ Printer ☐ Modem
☐ Hard disk ☐ ____________

4. Which application programs?
☐ Word processing ____________
☐ Data base mgmt. ____________
☐ Finance/accounting ____________
☐ Program development ____________
☐ Communications ____________
☐ Stat/scientific ____________
☐ Games ____________
☐ other ____________

5. Where do you use your computer? ☐ Small Business ☐ Large Business
☐ Profession ☐ Home ☐ other:

Name ______________________ Age ________ Sex _____
Occupation ______________ Company ______________ Title ______________
Address ______________________ City, State, Zip ______________________

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```
This could be a trademark® notice.                      ⟨
And this could be a copyright © notice.                 ⟨
                                                        ⟨
A. This Headline                                        ⟨
        1) Part of an outline                           ⟨
        2) Used again in table of contents              ⟨
```

To show the difference between *moving* a block and *copying* a block, we'll first show you how to move the entire block to another location in the document. Move the cursor to the last line, and type the block move command — Control-*KV* (↑*KV*). The entire block should move to the end of the document, as it did in our example:

```
This could be a trademark® notice.                      ⟨
And this could be a copyright © notice.                 ⟨
                                                        ⟨
A. This Headline                                        ⟨
        1) Part of an outline                           ⟨
        2) Used again in table of contents              ⟨
                                                        ⟨
⟨B⟩ This could be a legal paragraph used in several differ-
ent contracts you are writing. On the other hand, it could be
one of several paragraphs in a letter you are writing, to be
used again in the next letter. The file read (↑KR) command
makes it easy to bring text from any file into a WordStar text
file.                                                   ⟨
⟨K⟩                                                     ⟨
```

To copy a block, move the cursor to the line where the copy should begin, and type Control-*KC* (↑*KC*) — block copy. The entire block should appear in the new position, *and* the original block should remain in place. Using the block copy command you can quickly copy within a document a word, several words, a line, set of lines, a paragraph, or sets of paragraphs.

The block copy command (↑*KC*) is the preferred method for copying one or more lines of text over and over. For example, if you need several trademark notices, you could copy one notice several times, and then change the product name in each notice. To do this, put block markers around a trademark notice using the ↑*KB* and ↑*KK* commands:

```
↑KB
WordStar® is a trademark of MicroPro International.
↑KK
```

This should produce the following display (text could be highlighted, reversed, or dimmed):

```
⟨B⟩ WordStar® is a trademark of MicroPro International.
⟨K⟩
```

With the block marked, you can copy it as many times as you like by typing ↑*KC* for each copy:

```
⟨B⟩ WordStar® is a trademark of MicroPro International.
⟨K⟩ WordStar® is a trademark of MicroPro International.
WordStar® is a trademark of MicroPro International.
WordStar® is a trademark of MicroPro International.
WordStar® is a trademark of MicroPro International.
```

By moving the cursor and typing over letters, you can change the notices for other trademark names (DataStar, InfoStar, etc.).

When marking a block, you can move the markers simply by typing the marker command at a different position in the text. You can also cancel the markers by typing Control-*KH* (↑*KH*) — the "block hide" command.

You can also delete a block with the ↑*KY* (block delete) command, but be careful! The only way to "undo" such a delete is to abandon all edits through use of the ↑*KQ* (abandon edit session) command. The block delete command is very useful for getting rid of unwanted text very quickly — simply mark the text with beginning and ending markers (↑*KB* for begin, ↑*KK* for end), and type Control-*KY* (↑*KY*).

Copying A Block To A File

You just learned how to bring text into a document by *reading* the entire file into the workspace with the ↑*KR* command. This brings the entire file into the workspace.

If you don't want an entire file, or if you have text in the workspace you want stored elsewhere in another file (perhaps by itself), use the *block write* (↑*KW*) command.

First mark the section of text as a block, using ↑*KB* (block beginning) and ↑*KK* (block end) marking commands. Then type Control-*KW* (↑*KW*), and this message should appear:

```
NAME OF FILE TO WRITE MARKED TEXT ON?
```

Type the name of the file to store the block, and press RETURN. WordStar creates the file with the block of text.

This method transfers one section of a document at a time to a new file. If you try to transfer text *to an existing file*, you'll get this message:

```
FILE d:filename.typ EXISTS — OVERWRITE? (Y/N):
```

In this message you'll see the name of the file you tried to transfer to (d:filename.typ). You can't add to an existing file using ↑*KW* — you can either write to a new file, or *overwrite* an existing one (replacing the file's contents with the new block).

Type *Y* to overwrite d:filename.typ, or type *N* to use a different name (the cursor moves back to the question asking for a filename). If you don't like either choice, type Control-*U* and press your ESCape key to cancel the command.

Copying Several Blocks To an Existing File

Using a combination of block write and file read commands, you can move text in blocks from one document to another existing document.

The block write command always creates a fresh, new file, even if you use the name of an existing file (it replaces the existing file's contents with new contents). Therefore, to transfer a block of text to an *existing* document, you must first transfer the block to a new file, then read the new file into the other document.

In WordStar you'd first use ↑*KW* to write a block file, then edit the other document and use ↑*KR* to read the block file into the other document.

This operation is cumbersome if you do it for each block. Here's a slightly better method of transferring several blocks:

1. Edit the original document.
2. Mark a block of text and type Control-*K* and *W* (↑*KW*).
3. Use the name *BLK.1*, or something similar that ends with a one, and press RETURN.
4. Move to the next area and mark the next block.
5. Type ↑*KW* again to write this block to another file.
6. Type Control-*R*, and your previous block filename should appear, with the cursor at the end. Use your delete key to move back over the one, and type *2* to make the filename *BLK.2*. Press RETURN.
7. Continue marking blocks and writing them to consecutively- numbered block files, until you've copied all blocks (each block file will occupy at least 2K of disk space, and possibly more).
8. Finish editing the original file as you wish and save it, or abandon the original file to keep it unchanged. Select another existing or new file for editing.
9. Move to the location where you want to insert the very last block you copied, and type Control-*K* and *R* (↑*KR*).
10. Type Control-*R* to restore the filename of the last block file you created, and press RETURN. This reads the last block into the other file at that position, leaving the cursor at the beginning of the block.
11. Move the cursor (if necessary) to where you want to insert the next-to-last block you copied, and type ↑*KR*.
12. Type Control-*R* again to restore the filename, delete the ending number of the filename, and type the previous number, then press RETURN. This reads in the next-to-last block.

Using this method you can read back into the other file each consecutive block in the reverse order that you copied them. You can also read them back into the other file in any order. The Control-*R* editing command can be used each time WordStar asks for a filename, and it restores the previous filename you used for that question. If you know the keystrokes, you can quickly move blocks of text of any size (depending on disk space) to and from files on any active (logged) disk.

Moving and Copying Columns

WordStar 3.0 and newer versions provide a *column mode* for moving and copying blocks within a file. When you switch on column mode by typing Control-*K* and *N* (↑*KN*), WordStar treats the workspace as having rows and columns. You can mark columns and move them without disturbing other columns.

You mark a column using ↑*KB* and ↑*KK* commands:

```
             (B)                                               <
   A                C          B          D                    <
100.00           240.00     123.12     320.20                  <
223.00           220.00     340.10     450.30                  <
120.00           200.00     200.10     620.10                  <
300.00           214.00     190.10     530.10                  <
                         (K)                                   <
```

With column mode on and the column marked, you can move it or copy it sideways, occupying the same rows. For example, we shall move column C to column B's position by moving the cursor above column B on the same row as the ⟨B⟩ marker, and typing ↑*KV* to move the block:

```
                         (B)                                   <
   A           B                C          D                   <
100.00      123.12           240.00     320.20                 <
223.00      340.10           220.00     450.30                 <
120.00      200.10           200.00     620.10                 <
300.00      190.10           214.00     530.10                 <
                                     (K)                       <
```

To move or copy the column to other locations, first create room for it, because in column mode your end-of-line RETURNs (shown as ⟨ in examples above) are not included in the block. If you don't, you may merge the column with existing text. Use Control-*N* commands to create blank lines to accommodate the length of the column to be copied or moved.

After using column mode to move columns, be sure to remember to *turn off* column mode by typing the ↑*KN* command again.

Decimal Tabs

The decimal tab is a useful feature for typing columns of numbers. It marks the place for your decimal point in each column, and lets you type the digits and decimal point without worrying about digit placement.

Move the cursor to a position in the center of your workspace, and type Control-*O* followed by *I*. You get this message:

```
For decimal tab stop enter "#" and decimal point column
SET TAB AT COLUMN (ESCAPE for cursor column)?
```

Type the number sign (#), then press your ESCape key to mark that position as a decimal tab. You could substitute the actual column number for the ESCape key, to mark any column. Using ESCape marks the column of the cursor.

Move the cursor backwards, before the decimal tab, and use your TAB key to move the cursor to that position. Start typing numbers, and you should be pleasantly surprised — they move to the left as you type them. Type a decimal point (period — not comma as in European numbers), and any more digits you type are moved to the right of the decimal point.

With insert mode off (Control-*V* toggle), you can use TAB to move from column to column, typing or retyping numbers with ease.

Use TAB to move to an existing number with a decimal tab at the decimal point. Use your delete key (DEL or Rubout on some keyboards), and numbers are deleted in the same manner as entry.

You can clear any tab mark by moving to the position and typing Control-*O* followed by *N* and ESCape (↑*ON* ESC).

Moving Around Quickly

We keep text files to a six-page limit, splitting large documents into several files (linked for printing purposes only). To move around in larger text files, you need to use several WordStar tricks.

You should already know how to use these commands:

↑*QR*	Move to the very beginning of the file.
↑*QC*	Move to the very end of the file.
↑*QD*	Move to the end of the line.
↑*QS*	Move to the beginning of the line.
↑*QP*	Move to the previous position of the cursor.

Using ↑*QR* or ↑*QC* in a large file can cause delays, especially when using ↑*QR* at the end of a large file to move back to the beginning of the file (this can sometimes cause a DISK FULL message, because WordStar uses disk space to store the workspace text).

To move backward to the beginning of a large file, it is far better to *save the document* with ↑*KD*, then select *D* again and re-edit the document (use ↑*R* to restore the filename), than to use ↑*QR*.

The ↑*QP* command is useful for moving back to the previous editing position after the ↑*KS* save-and-re-edit command. It is also useful for jumping back and forth from one place in a file to another in the same file.

Another trick for moving page by page through a file is to use the find command to find every 55th line in the document (assuming your document page size is 55 lines).

To do this, type Control-*Q* and *F* (↑*QF*, the find text command). WordStar displays the prompt FIND?. You type a Control-*N* (shown as ↑N), which represents a WordStar end-of-line (the Carriage Return and Line Feed characters). Press RETURN, and the command asks for any OPTIONS?. You type *55* (or whatever number of lines you set for lines per printed page). The dialog should look like this:

```
FIND? ↑N↵     OPTIONS? (? FOR INFO) 55↵
```

WordStar moves the cursor to line 55 (line one of the second page). Type Control-*L* (↑*L*) to repeat the find command, and the cursor moves to line 110 (line one of the third page). Keep typing ↑*L* to move to the top of each page.

You can also quit or save your editing changes, select another text file to edit, and continue using ↑*L* to repeat that find command and move to the top of each page in the file.

While editing a file, you can set up to 10 place markers (not including block markers) anywhere in the text, and move from marker to marker with ease.

Type Control-*K* and the number of the place marker (0-9) to set the marker, and Control-*Q* and the number to move the cursor to the marker. The markers do not remain in the file after a save-exit (↑*KX*) or save-done (↑*KD*) command, but they do remain in place after a save-re-edit (↑*KS*) command.

You can move to the beginning of a block with Control-*QB*, or move to the end with Control-*QK*.

To summarize:

↑*QF*↑*N*↵*55*↵	Move 55 lines (find the next 55th occurrence of an end-of-line).
↑*L*	Repeat the next find command (use after the above to move to the start of each 55-line page).
↑*Kn*	Set place marker *n* (*n* is from 0 to 9).
↑*Qn*	Move to place marker *n*.
↑*QB*	Move to the beginning of a marked block.
↑*QK*	Move to the end of a marked block.

The ↑*QF* (find text) command can be very useful for moving to a specific place in a text file. After typing Control-*Q* and *F*, you type the character string or word you are searching for, and press RETURN. WordStar then asks for options:

```
FIND? ↑turn off↵     OPTIONS? (? FOR INFO)
```

Press RETURN to find the next occurrence of the phrase, or type the number *nnnn* to find the *nnnn*th occurrence of the phrase. We usually press RETURN and use ↑*L* to repeat the find command (if it needs repeating).

Replacing Characters and Entire Words

The ↑*QA* (find and replace) command finds any string of characters and replaces them with whatever new string you type with the command, no matter how many characters either has (there is a limit on how many you can type with the command).

For example, you can replace the words "September" with "October" throughout a file, or only in the first occurrence, or only for certain instances. You could also substitute "Sept." for "September" with ease, but you might have to reform the paragraphs — therefore, you'd want to replace them one at a time.

The easiest replacement is one at a time. Type Control-*Q* and *A*, the string to replace, and the replacement string:

```
FIND? September↵    REPLACE WITH? October↵
OPTIONS? (? FOR INFO)↵
```

Press RETURN to the OPTIONS? question to perform the replacement once. When WordStar finds the string to replace, it displays:

```
REPLACE (Y/N):
```

Type a *Y* or *y* to perform the replacement. Any other key skips the replacement. An option turns this feature off, for performing multiple replacements without this question.

In this method (no options), the word "September" is replaced with "October" only where "September" appears in lower case letters with a capital "S". If the word "SEPTEMBER" is used, it is not replaced.

There are many options available for finding text and for replacing text. If you type a question mark (*?*) followed by RETURN, you get a list of options which are summarized here:

nnnn↵	Perform the find or replace operation *nnnn* number of times.
B	Search backwards from the end of the file (use with *G* to search and replace from the end of the file to the beginning).
U	Ignore the distinction between UPPER and lower case letters ("Word" matches with "word" or "WORD").
G	Search or replace "globally" (throughout the file), starting from the beginning (or the end, if used with *B*).
W	Find the string of characters only if it is a whole "word" (no letters or digits before or after the string).
N	Replace automatically without asking (replace command only).

These options can be used together, as in these examples:

```
FIND? September↵    REPLACE WITH? October↵
OPTIONS? (? FOR INFO) GNU↵
```

(Replace globally, without asking, and ignore the UPPER/lower case distinction between letters.)

```
FIND? Rick's↵
REPLACE WITH? The Blue Parrot↵
OPTIONS? (? FOR INFO) 123↵
```

(Replace from the current cursor position forward in the file at least 123 times, asking each time. You can stop this operation anytime by typing ↑*U* and ESCape).

```
FIND? Xanadu↵    REPLACE WITH? Rosebud↵
OPTIONS? (? FOR INFO) -23NW↵
```

(Replace backwards from the current cursor position the last 23 occurrences of the whole word "Xanadu" with "Rosebud" without asking.)

To replace throughout a file, use the *G* option. With *N*, the replacements will occur without question. To speed up global or multiple replacements using *N*, press your space bar or any key, and the replacements will occur without being displayed (the display slows down the operation).

Using a number instead of *G* starts the operation from the current cursor position, forward (if the number is positive) or backward (if the number is negative).

You should specify unique strings for replacement. For example, if you tried to replace "here" with "there" by specifying "h" as the string to replace with "th", you'd be forever skipping ordinary instances of "h" in other words. The more specific you are, the quicker you can replace words or phrases because you can choose the *N* option.

End of Lesson

In two parts this WordStar tutorial introduces nearly every WordStar command used in everyday writing and editing. There are too many WordStar commands to show all of them in a tutorial of reasonable length.

We intend to continue covering WordStar, MailMerge and other MicroPro products in application notes, questions and answers, and installation notes. WordStar®, MailMerge® and others in the Starburst® package are available from distributors and computer stores, and manufactured by MicroPro International, San Rafael, CA.

Cache/Q: A System Enhancer

Increased Throughput, Faster Disk Access, Less Disk Wear: Disk and Print Buffering For CP/M 2.2 and IBM PC Systems

by Tony Bove & Cheryl Rhodes

Cache/Q is a software add-on to any CP/M 2.2 system that can improve the performance of your system, whether or not you have extra memory. Cache/Q is available for any computer running the CP/M 2.2 operating system, and a version is now available for the IBM PC. Cache/Q is not yet available for CP/M Plus (CP/M 3.0), which has Cache/Q-like performance improvements built-in.

CP/M Plus (3.0) can perform as well as a Cache/Q system only if you have more than 64K of internal memory in the form of *extra memory banks.* However, with Cache/Q and CP/M 2.2, you can approach the performance of a memory-banked system with no extra memory banks other than your original 64K of RAM. Cache/Q can also work with extra memory banks, providing performance similar to operating systems designed to take advantage of memory banks.

What are the performance advantages? Depending on the design of the programs you are running and the amount of disk data used in the application, you can look forward to these enhancements:

- Faster all-around disk access with less actual head contact with the floppy disk, and reduced wear on your disks and drive heads. Cache/Q uses internal memory to remember the last time it read the disk, so it doesn't have to go back to disk again for that information. This is known as *disk buffering.*
- Faster access to files you are using constantly. For example, you will find an item in a large data base faster, because the index file will remain in memory and the system will not have to re-read the disk for the index.
- Printing operations can occur simultaneously with regular computer operations. Cache/Q uses space in memory to hold characters sent to the printer. Your program sends characters to the printer quickly, and returns to continue computing; Cache/Q performs the printing operation. This is known as *print buffering.*
- Large programs will execute faster. By large we mean programs so large that parts are left on disk in "overlay" files (such as WordStar, SuperCalc, dBASE II, FMS-80, etc.). These programs will run faster because Cache/Q will keep the "overlay" files in memory.

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CP/M is a registered trademark of Digital Research, Inc. (Pacific Grove, CA).
WordStar is a trademark of MicroPro Int. (San Rafael, CA).

- You can set up commands to be executed automatically after a Control-C or "warm boot" (a "warm boot" is what happens when a finishing program kicks the operating system awake).

Some of these features are found in the banked version CP/M Plus (3.0), requiring extra memory. They are impressive enhancements to any CP/M 2.2 system, especially standard 64K systems.

Internal Memory: Is It More Than 64K?

"64K" stands for 64 kilobytes, or 65,536 bytes. Since one byte is the equivalent of one character, symbol or space, 64K of memory can hold 65,536 characters, symbols and spaces.

The term *internal memory* means the amount of computer memory available for use by programs for calculating and for transferring data to and from your screen, keyboard, printer and other devices. This is not to be confused with *disk memory*, the space on disk used to store programs and data.

Most CP/M systems have 64K of internal memory called RAM (random access, or read/write memory). Some systems have extra memory in ROM chips (read-only memory, which cannot be changed or used for data transfer).

A ROM memory chip usually holds a specific program, like a BASIC interpreter or a self-test program. It cannot hold your data or any temporary, changeable data.

The RAM chips are used for processing data, operating programs, and performing nearly all the other tasks computers can do. The amount of RAM you have is a measurement of the *power* of your system — how much processing can you do at once? How large a program can you hold in your internal memory at any one time? The internal memory is your working memory, and how much work you can do at once is a function of how much "K" your system has.

Some systems let you add more RAM boards, called *memory banks*, which can extend the usual 64K of internal memory to 128K, 256K, etc. Note that plain CP/M 2.2 cannot manage the extra memory unless it is modified internally or enhanced through a program such as Cache/Q (although CP/M Plus, CP/M 3.0 and sixteen-bit versions of CP/M are designed to handle larger amounts of internal memory).

With Cache/Q in a plain CP/M 2.2 system, you can manage the extra memory boards to reduce disk access and keep larger files and programs completely in memory. The speed of some programs increases dramatically.

Setting Up Cache/Q

Start by making copies of the master disk, and then transfer the following files from a master copy disk to a working system disk (one that works in drive A):

```
CONFIGQ.COM        CONFIGQ.OV0    CONFIGQ.OV1
CONFIGQ.OV2        CONFIGQ.OV3    CQPUBFMT.LIB
CQ.COM             INSTALLQ.COM
```

Since Cache/Q can manage memory from 48K up to 1,500K (1.5M, short for "megabytes"), you have to tell it how much memory you have, and it has to get to know your system's space. You *configure* Cache/Q to know your system's memory using the CONFIGQ program:

```
A)CONFIGQ↵
Cache/Q Configuration Utility
Cache/Q Disk Buffering System
Copyright (c) 1982, 1983 by Techne Software
Version 2.0 1/10/83

Do you have additional Bank Select Memory
or Extended Address Memory available? (n/y)
```

At this point you may be asking if this is such a good idea, configuring such a powerful utility without consulting the manual for more details. Cache/Q is remarkable in this respect: you can re-configure the utility whenever you want. The producers of Cache/Q recommend that you try a simple configuration and experiment with it in several applications.

We describe additional memory banks later; for now, you can type *N* or *n* to see more of the configuration program:

```
Do you have additional Bank Select Memory
or Extended Address Memory available? (n/y) n↵

Can you use the Standard Configuration of Cache/Q
or do you require Cache/Q to be located Above CP/M?
(s/a)
```

This is an intriguing question. Do you use a standard version of the CP/M 2.2 CCP module? The CCP is the module that waits for you to type CP/M commands. It finds the program you are looking for, or it executes a built-in command. If your CCP has been modified, you have to use an alternate configuration of Cache/Q. This is not hard to do, but it requires a little more knowledge about your CP/M system.

How do you know if your CCP has been modified? First, if you have more built-in commands than the usual DIR, ERA, REN, SAVE and TYPE, you probably have a modified CCP. If your version of CP/M has fancy editing commands to move the cursor on the command line and edit CP/M commands, then you are probably running an enhanced CCP or a version of CP/M Plus (or some other CP/M lookalike with enhancements, such as ZCPR).

If so, you need the alternate configuration, described later. All normal CP/M users: type *s* or *S* and continue configuring a standard Cache/Q-enhanced system.

CONFIGQ displays the following:

```
**** Configure Cache/Q with no bank select memory:

You currently have 55552 (D900H) bytes of free space
```

```
available.

You may specify one of the following:

(N) Number of sector buffers
(S) Size of the buffer space
(T) Top of the Transient Program Area (TPA)
(D) Default values computed by this program

Which do you wish to specify? (N/S/T/D)
```

Before we plunge into this one, here's a brief description of *disk sector buffering*, the size of the buffer memory space, and the TPA.

Disk Buffering

A disk holds data in physical *sectors* located within each disk *track*. Cache/Q reserves an area in memory for itself, and an area called the *buffer space*, in which reside the *sector buffers*. Each sector buffer is a mirror image of a physical disk sector.

Here's an example of what happens when the system uses a disk with Cache/Q activated:

When you first type the DIR command to read a disk directory, Cache/Q records a mirror image of the physical directory sectors in memory in *sector buffers*. When you type DIR again, the system does not have to read the disk — it can repeat the information from the sector buffers held internally.

Here's another example: when your program reads a file, Cache/Q holds in memory each sector you read. If the data you want is in a sector in memory, CP/M does not have to move a disk drive mechanism and actually read the disk.

This can save a lot of time for large programs. It takes, on the average, 348 microseconds to read a sector from a disk. On the other hand, it takes 1.3 microseconds to read a sector from a Cache/Q buffer in memory.

Disk buffering means less wear on the disk and the drive heads. Simple reading is sometimes the only abuse a floppy disk has, if treated gently. However, simple reading over a period of time wears down the disk.

Fortunately, Cache/Q does *not* buffer data as you write it to disk. This would be disastrous if power went down before Cache/Q emptied its buffers and wrote the data to disk. Cache/Q is designed to buffer reading; all changes (writing) pass right through to the disk as you make them.

Print Buffering

In a similar way to disk buffering, Cache/Q performs *print buffering* that lets you send a file's contents to a printer and return immediately to your application program, without waiting for the file to complete its printing.

CP/M systems use the device name LST: for the printer device, and most application programs send data to the LST: device whenever you request a printout. The Control-*P* command from the CP/M command line also activates the LST: device and prints everything typed or displayed until you type another Control-*P*

Cache/Q buffers printing by intercepting characters as they are sent to the LST: device, and storing them in the buffer space. Cache/Q takes care of sending the characters to the printer, letting CP/M return control to you or your application program. You can continue computing while Cache/Q performs the necessary communicating with the printer.

The amount of space used by the print buffer varies according to the amount you are sending to the printer. Print buffering may occupy the entire buffer space for a short while, leaving no space for disk sector buffers and temporarily suspending disk buffering. This is actually desirable, because printing is slower than disk access.

In other words, since the printer takes more of *your* time, Cache/Q takes over as much printing as possible, even to the extent of not buffering the disk. You can continue computing, and as the printer receives more characters, Cache/Q frees space for more disk buffering, which speeds up everything.

Memory Organization: With Up To 64K RAM

CP/M manages internal RAM by reserving space for its own modules and space for programs to execute, as shown in figure 1.

CP/M 2.2. organizes 64K of internal memory to include itself in three modules (BIOS, BDOS and CCP), one reserved system area (first 100H bytes, or *base page*), and a large area for system and program activity and temporary data storage called the *transient program area* or TPA.

The TPA is your first consideration. How much of this area do you need? WordStar® uses as much space as there is available to hold the text you write and edit in document or

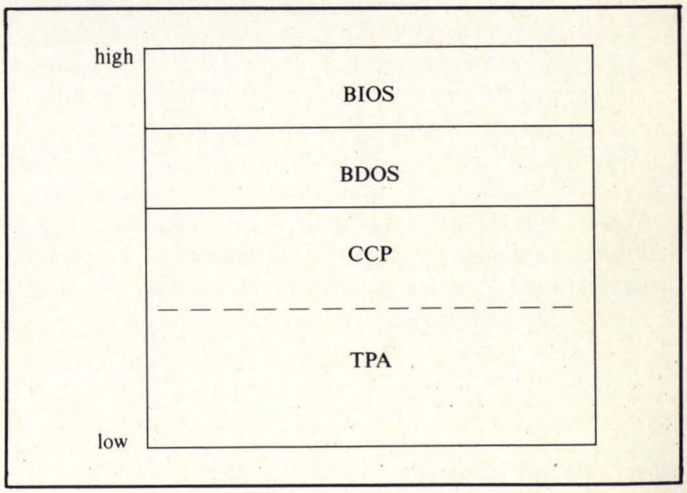


Figure1. *CP/M 2.2 48K-64K memory organization, including the CP/M modules known as the BIOS, the BDOS, the CCP, the reserved system area below 100H, and the TPA where program and data processing activities occur.*

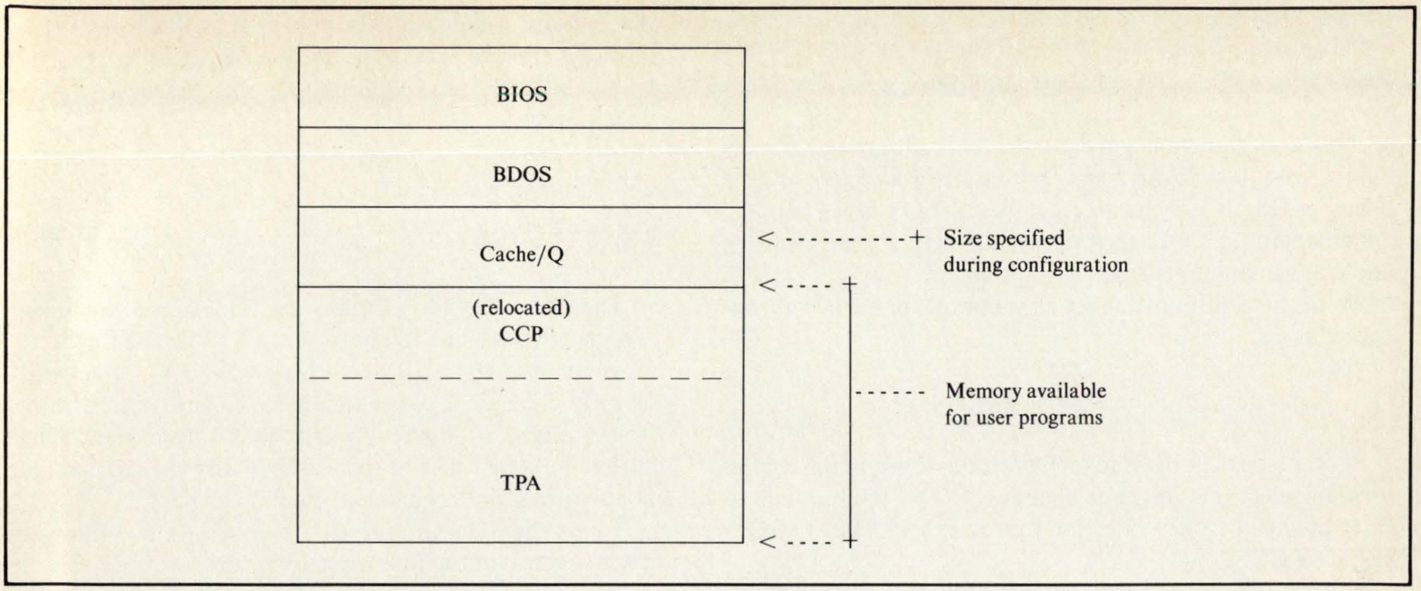

BIOS
BDOS
Cache/Q
(relocated) CCP
TPA
Size specified during configuration
Memory available for user programs

Figure 2. *CP/M 2.2 48K-64K memory organization after installing Cache/Q. Cache/Q occupies some of the former TPA, and relocates the CCP code to a disk file named CCP.SYS.*

non-document mode. Therefore, if you use some of the TPA space for Cache/Q buffers, the amount you use will determine the amount of text WordStar can keep in memory at any one time. WordStar may go back to disk more often looking for text if you use up too much TPA with disk buffers; however, disk buffers speed up the process of accessing disks.

The tradeoff is better disk access performance at the expense of using internal memory, which is fine for small and medium-sized programs that do not require a lot of space for data. Or, you trade more internal memory for slower disk access and more disk and head wear, which is the choice for larger programs that require space for data.

This tradeoff does not occur if you have extra memory banks. With extra memory, Cache/Q hides itself in a memory bank and does not use any of the standard TPA area. This is shown in more detail later.

Under standard configuration, Cache/Q "sneaks" into CP/M, relieves the CCP module temporarily from duty, and relocates it to disk in a file called CCP.SYS. *You must keep this file on a disk in drive A while running* Cache/Q, because the system must be able to find its CCP module.

Cache/Q puts itself in the place of the CCP module, and takes up some more of the TPA area. You can let Cache/Q's CONFIGQ program choose a default amount of the TPA to occupy, or specify an amount in the configuration process by typing the new address for the top of the TPA. Cache/Q occupies whatever is left between the BDOS module and the new top of the TPA, as shown in figure 2.

A feature of this memory organization is that Cache/Q can intercept Control-*C* or other warm boot request, and can automatically start programs (like menu programs for applications) without allowing the user to gain control of the system.

Also, you can use application disks that have only CCP.SYS on them in drive A and still operate the system (however, you need a system disk to do a complete reset or system re-start).

Specifying Memory Size: Standard 64K Configuration

Back to the CONFIGQ question about how to specify size: you can choose to specify the number of sector buffers, the size of the buffer space, or the top of the TPA. Or, choose the default size and let Cache/Q start by taking up one-fifth of the available space. You can always re-configure it for more or less space.

For our examples we used Cache/Q with an Alspa ACI system, running Alspa's modified CP/M 2.2 (ACIDOS 2.29A). We chose the standard configuration, since the CCP module had not been modified. Note that although nearly every CP/M system has a modified BIOS module for its particular hardware environment, most do not have a modified CCP module.

We also selected default sizing, letting Cache/Q compute its own size for itself and its buffer area, and it computed this useful configuration:

```
Number of buffers:        88    (58H)
Buffer space:             11264  (2C00H)
Top of TPA:               40448  (9E00H)
```

We used WordStar on an existing text file, and found that WordStar could move the cursor three full screens forward before returning to disk for more of the text file. Although performance improved whenever the system needed disk information, we thought we could speed up the process of editing a WordStar text file by increasing the TPA.

To do this, we ran CONFIGQ again, and specified the *number of sector buffers*. We picked a number less than 88 (the amount computed as the default), and a number divisible by 8 (since memory units are counted in hexadecimal numbers, using a multiple of 8 or 16 produces a clean division between areas of memory). We picked 56 buffers, and Cache/Q came up with this configuration:

```
Number of buffers:       56   (38H)
Buffer space:            7168   (1C00H)
Top of TPA:              45056   (B000H)
```

This configuration gave us the best all-around performance with WordStar text files that are six or less printed pages in length (single-spaced). We already break all long documents into six-page text files anyway, for easy editing and transferring to typesetting equipment.

With the configuration set as you want for a trial run, answer this last question:

```
Is this the desired configuration? (y/n)y↩
```

A *Y* or *y* configures Cache/Q; *N* returns you to the configuration selections to make changes. CONFIGQ automatically creates two new files for your use: INSTALLQ.COM and CCP.SYS.

Both files must be on the system disk when you start your system. You need INSTALLQ to install Cache/Q for the system session, and you need CCP.SYS on the system disk in drive A at all times during the system session. Another program, CQ.COM, helps you "fine-tune" Cache/Q while running it.

You "install" Cache/Q every time you use it. If you need to have different configurations available, you can copy INSTALLQ.COM and CCP.SYS to another disk to save that particular configuration, and re-configure Cache/Q to create another set of INSTALLQ.COM and CCP.SYS files.

Installing and Running Cache/Q

When you are ready to test Cache/Q's performance, "install" and run Cache/Q from your system disk. With INSTALLQ.COM and CCP.SYS available on the disk in drive A, type this command to "install" and run Cache/Q:

```
A)INSTALLQ↩
(Cache/Q and Disk System Reset, 56 Buffers)
A)
```

(Your message may show a different number of buffers, depending on what you selected during configuration.)

Try a typical DIR command. Then immediately try another. Notice that on the second try, the computer did not go back and read the disk. It didn't have to — Cache/Q kept the entire disk directory in its sector buffers.

Try other programs. If you get an error message saying that you're "out of memory," re-configure Cache/Q to have a smaller number of sector buffers until the program works.

Type a Control-*C* to perform a "warm boot," and this message should appear:

```
A)↑C
(Cache/Q and Disk System Reset, 56 Buffers)
```

"Installing" Cache/Q is easy for most system operators, but you may have an application in mind for a system disk that requires a menu program to execute automatically after initially starting the system, and/or after every "warm boot." The supplied CQ utility lets you "tailor" Cache/Q to your system.

The CQ Utility

The CQ utility (CQ.COM) lets you examine and change aspects of the Cache/Q configuration while running it.

You can temporarily de-activate Cache/Q, re-activate it, set up or change the command line of an automatic command (to be started after every "warm boot"), reset the Cache/Q buffers for a new disk, display and modify various configuration features, or "remove" (turn off) Cache/Q.

To run the CQ utility, type the command *CQ*, followed by a space and one of the following options:

```
CQ REMOVE↩
```

Take Cache/Q out of your system (the reverse of "installing" Cache/Q). To run Cache/Q again, you have to install it.

```
CQ RESET↩
```

Reset the Cache/Q buffers and perform a disk reset (similar to a Control-*C* without performing a complete "warm boot"). Either this command, or a complete "warm boot" (using Control-*C*) must be performed whenever you replace a disk with another disk.

```
CQ INACTIVATE↩
```

Temporarily turn off Cache/Q so that normal disk and printer operations occur as if Cache/Q wasn't there. In this mode, all disk requests are sent directly to the BIOS module of CP/M without any interventions by Cache/Q.

```
CQ ACTIVATE↩
```

Turn Cache/Q back on after a period of inactivity. The active state is the normal state for Cache/Q.

```
CQ AUTO↩
```

Set up, modify or clear the automatic command line which is executed automatically after each "warm boot." (See below.)

```
CQ DISPLAY↩
```

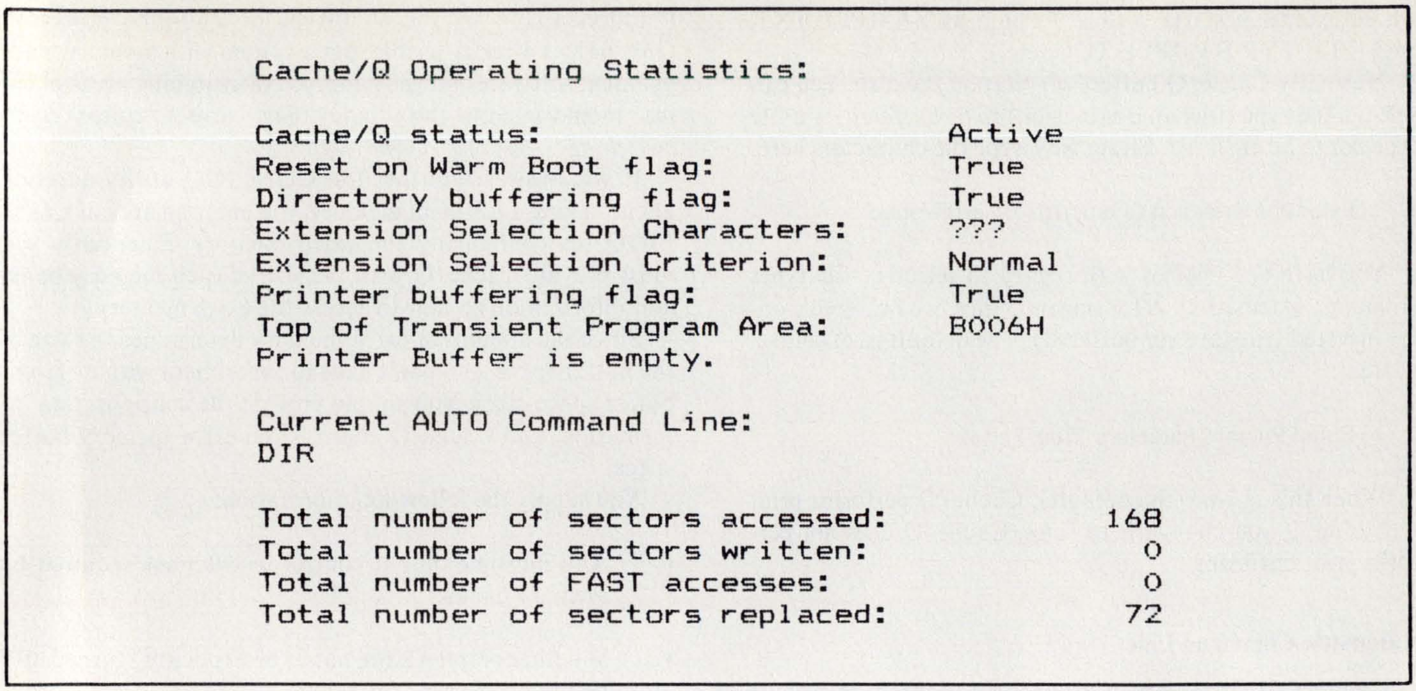
Display the state of various Cache/Q features including the *AUTO* command line and statistics on buffer usage.

```
CQ MODIFY↩
```

Change some of the features displayed in the *CQ DISPLAY ↩* command in order to "fine tune" your Cache/Q-enhanced system (see below).

```
CQ PAUSE↩
```

Suspend printing temporarily. Cache/Q asks if you



```
Cache/Q Operating Statistics:

Cache/Q status:                         Active
Reset on Warm Boot flag:                True
Directory buffering flag:               True
Extension Selection Characters:         ???
Extension Selection Criterion:          Normal
Printer buffering flag:                 True
Top of Transient Program Area:          B006H
Printer Buffer is empty.

Current AUTO Command Line:
DIR

Total number of sectors accessed:              168
Total number of sectors written:                 0
Total number of FAST accesses:                   0
Total number of sectors replaced:               72
```

Figure 3. *A display from the CQ utility showing details of the state of Cache/Q, some of which can be modified while running Cache/Q.*

want to clear the print buffer. If you want to continue printing, type *N* to save the buffer; if not, type *Y* to clear it.

CQ CLEAR↵

Stop printing and clear the printer buffer.

CQ DELAY↵

Adjust two printing delay parameters. Adjustments are required for printers connected through a serial port (no adjustments necessary for parallel connections — this should be set to zero). The major delay counter affects printer operation with overall program operation, and the minor delay counter affects printer operation with console input operation. In general, both delays should be set to the smallest value (between zero and 99) that does *not* cause the computer to "lock up." Experiment with values by printing a very large file and changing the delays until the printing performs accurately without computer "lock-up."

Cache/Q "Fine-Tuning"

The "fine-tuning" you can do while Cache/Q is running includes selecting specific types of files to buffer or not buffer, deciding whether or not to buffer the disk directory sectors, turning on or off print buffering, and turning on or off the automatic reset.

The CQ utility can display the state of Cache/Q at any moment while using it (for the display see figure 3):

```
A>CQ DISPLAY↵
```

When you type the *MODIFY* option with *CQ*, you are prompted for new values for some of these features:

```
A>CQ MODIFY↵
Reset on Warm Boot (True/False) :
```

If you set this to *False*, the buffers will not change from program to program or after replacing a disk and performing a Control-*C*; in which case if you replace a disk you must type the *CQ RESET* command.

When this is *True* (the default), any "warm boot" operation (Control-*C* or program termination) also resets the Cache/Q buffers. It is safer to keep this *True*.

NOTE

When the "warm boot reset" is *True*, you get the message (Cache/Q and Disk System Reset, nnnn Buffers) after a "warm boot." When it is *False*, you get the message (Cache/Q Active, nnnn Buffers).

```
Buffer Directory Sectors (True/False) :
```

The default is *True*, which speeds up directory and disk access. If you set it to *False*, the directory sectors are not buffered, and every directory access requires a disk access.

```
Extension Selection Characters (CCC) :
```

This feature of Cache/Q lets you specify *file types* for disk buffering. The default is *???* which stands for any file type (filename extension). To buffer only programs and command files, use *COM* as the selection characters. The question mark (*?*) stands for any character; therefore, *T??* stands for any file whose extension starts with a *T* (such as SAMPLE.TXT, SAMPLE.TYP, SAMPLE.TOC, etc.).

Normally Cache/Q buffers *all files* on the disk. You can select a file type (filename extension) *to be buffered*, or a file type *not to be buffered*. Either way, type the characters here.

```
Extension Selection Criterion (Normal/Inverted) :
```

You have two choices with regard to selecting file types (filename extensions): *N* for normal (files are buffered), or *I* for inverted (files are *not* buffered). The default is, of course, normal.

```
Buffer Printer Characters (True/False) :
```

When this is *True* (the default), Cache/Q performs print buffering; if you change it to *False*, Cache/Q does not perform print buffering.

Automatic Command Line

Cache/Q provides a way to specify a program to execute automatically after each "warm boot." A simple example would be performing the DIR command automatically. For an application disk such as a WordStar program disk, you may want to use the name of the WordStar program as the automatic command.

To set up an AUTO command line, type the following command:

```
A)CQ AUTO↵

AUTO Command Line is not set up.

Set up AUTO Command Line? (Y/N: Y↵

Enter AUTO Command Line (null line will disable AUTO):
dir↵
A)
```

After typing a Control-*C*, the system automatically executes the DIR command.

To change or disable the AUTO command line, type the command again, and press RETURN for a blank command line.

You can go one step further and modify CP/M directly to automatically install Cache/Q, and using Cache/Q to automatically execute the program you specify. See "A Reference Guide to DU" in *User's Guide* vol. 1 no. 4 for an example of using the public domain disk utility by Ward Christensen to set up an automatic start-up command.

Configuration With Extra Memory Banks

When you add extra memory beyond 64K to an eight-bit 8080 or Z80 system, the memory is not directly usable ("addressable") by the 8080-type or Z80-type processor. Only 64K is directly usable, but a system with memory management software can use a method of switching areas of extra memory into the "main 64K area," called *bank switching*.

If you answer *Y* to the first CONFIGQ utility question about having additional memory, you enter an area of CONFIGQ for configuring the extra memory. Essentially you must provide Cache/Q with the size of each memory bank, and information on how to access the extra memory.

Since the amount of extra memory determines the size of the buffer space, you don't have to experiment with different buffer space sizes. You simply provide the configuration information, and Cache/Q controls the extra memory buffer space.

You supply the following information:

- Any multiple output control instructions required by memory banks.
- Whether or not a bank has to be explicitly "turned off" before another is "turned on."
- How to "switch-in" each bank (the I/O port numbers and the values to be output to each port).
- The lowest address in each bank, and the bank's length in bytes.

These values can be typed as decimal integers, hexadecimal integers (preceded by *&H*), or octal integers (preceded by *&O*).

You can "hide from Cache/Q" the bottom or top of any bank, since you can specify the starting address and length. This is useful if your system uses a portion of a memory bank for some other reason.

In multi-bank mode, only a small portion of Cache/Q is located in the main 64K area. The remainder of Cache/Q and all buffer space is located in the extra memory banks. The small portion that remains in the 64K area sits just below the BDOS module and above the top of the TPA (see figure 4).

Alternate Configuration

The alternate configuration, used when you have a non-standard CCP module, does not change or relocate the CP/M modules in any way. Cache/Q prepares itself to relocate above the CP/M modules; however, you have to leave room for Cache/Q and its buffer space by relocating the CP/M modules themselves. Most computer systems provide MOVCPM.COM or a similar utility program for this purpose.

First, determine the amount of memory required by your configuration of Cache/Q, using CONFIGQ. Construct a smaller-sized CP/M using the MOVCPM utility — pick a size that allows enough room at the top for Cache/Q. Use

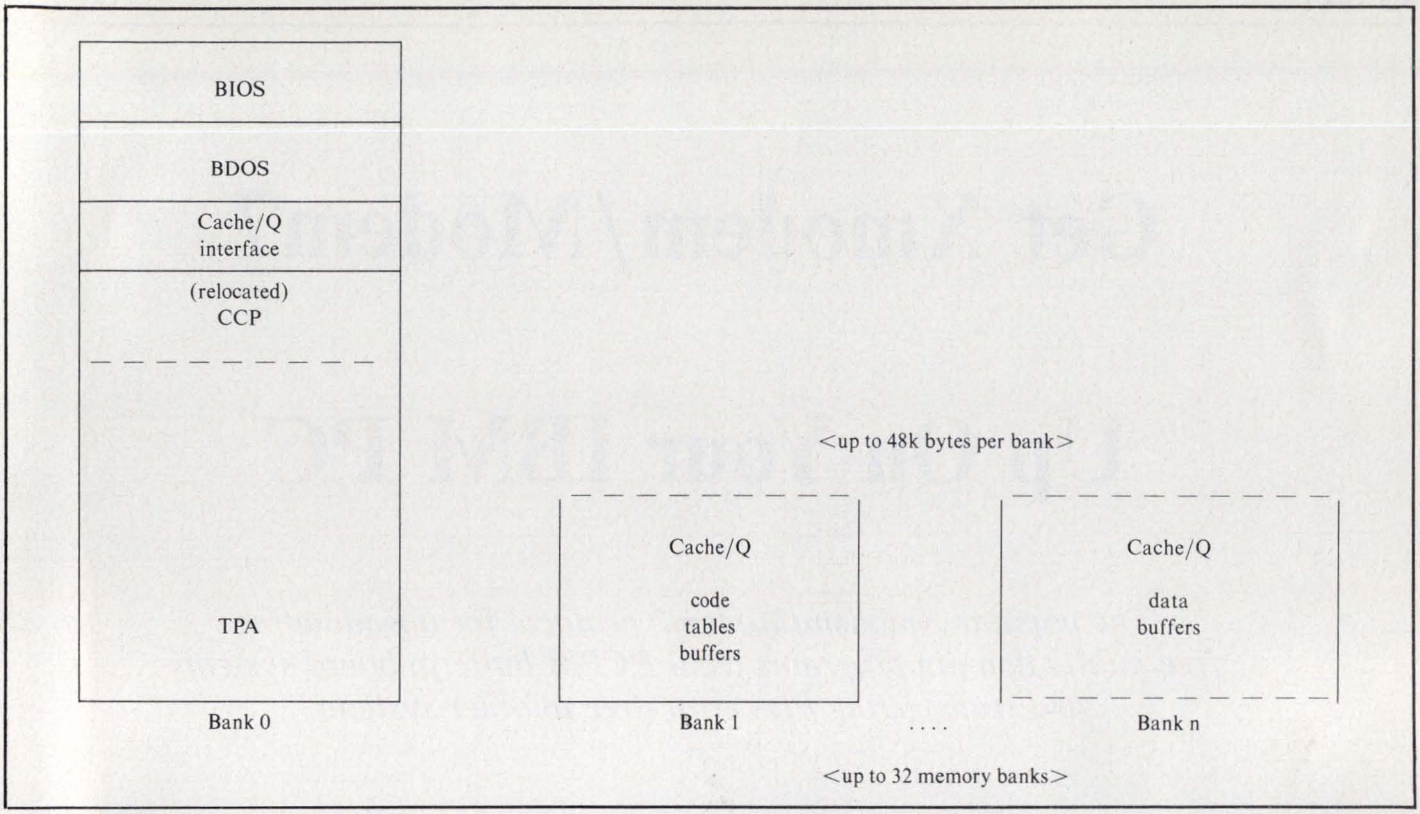


Figure 4. *With extra memory banks, Cache/Q relocates itself and the buffer space to the extra memory, leaving only a small portion (with interfacing code) in the main part of memory, under the BDOS and above the TPA.*

SYSGEN to place a copy on the system tracks of your system disk.

In the alternate configuration there are differences from the standard:

1. You can configure Cache/Q in a different environment than the one it is meant to run in. You may need to do this if you need a larger system to run the configure utility.
2. The CCP.SYS file is not required to be on the system disk, but each disk used in drive A must be a system disk (it must have a copy of the system on the system tracks). "Warm boot" operations are executed normally, so a copy of the system is needed on the disk in drive A.
3. As a result of number 2 above, Cache/Q is not able to execute a command automatically after a "warm boot." Also, the Control-*P* command (turn on/off the printer "echo" of the keyboard and screen) does not stay on after a "warm boot."

Conclusion

We have been and are still using Cache/Q in single-bank mode (no extra memory banks), standard configuration. We had trouble once when we were running two programs that relocate themselves into memory at the same time: a data capture program, and Cache/Q's CONFIGQ program. The result: a destroyed disk directory. It was our fault.

In poking through the manual looking for clues, we found this:

Warning

"Because of the way CP/M 2.2 operates, if the disk in drive A is replaced, a warm boot (via ↑*C*) or *CQ RESET must* be performed *after* the new disk is in place. If this is not done, the operation of your system will be totally unpredictable."

Marvelous. But this was not our problem...

We thought this warning was inappropriately placed in the back (Appendix B, page 2), but then realized it would only scare people who are not used to computers, and product manufacturers don't want to frighten nor intimidate their customers.

Techne is very careful in its manual and program design. The configuration utility is easy to use, and the CQ utility gives the added flexibility for fine-tuning the performance. Automatic print buffering for our eight-bit system is one of the best features, and the automatic command is easy to set up.

Cache/Q may be the solution in helping upgrade your CP/M 2.2 system with extra memory, and it is now available for the IBM PC (PCDOS version). It may also be a solution for CP/M 2.2 users who want memory management features found in CP/M Plus.

Get Xmodem/Modem7 Up On Your IBM PC

The popular Xmodem/Modem7 protocol for downloading free public domain programs from RCPM bulletin board systems and transferring files error-free to other systems.

by Kelly Smith

For IBM Personal Computer users who want a simple program for communicating with RCPM systems, I offer the following BASIC program for implementing the commonly-used Xmodem/Modem7 protocol on the PC.

Although you can obtain a copy of PC-Talk III (a complete communication program which uses the Xmodem/Modem7 protocol) from Freeware for a $35 donation, this BASIC program provides the necessary Xmodem/Modem7 protocol for file transfers to supplement whatever commercial or public domain communication program you are using.

Type the program exactly as it appears. I call the program PC-RCPM because it lets you download software from remote CP/M (RCPM) bulletin board systems.

The Xmodem/Modem7 protocol is explained in issue #3 of *User's Guide* in the article "Downloading from RCPM Systems."

Starting Up the Program

Execute the PC-RCPM program on your IBM PC or XT computer by typing the following command line at the IBM PCDOS command level:

```
A⟩BASICA PC-RCPM↩
```

This command runs BASICA (Advanced BASIC) and the PC-RCPM program. Allow 30 seconds for the system to load BASICA and PC-RCPM from disk into the computer's memory. PC-RCPM starts by clearing the screen and displaying:

```
PC-RCPM Version 1.1, 23-SEP-83 by Kelly Smith
```

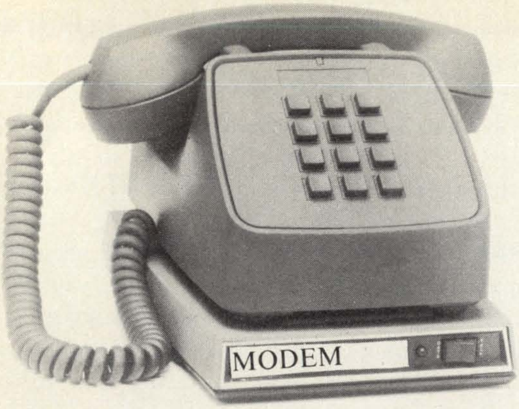
At the next question type *300* for 300 baud and press RETURN, or press RETURN by itself for 1200 baud:

```
Desired terminal line speed: 300↩
In terminal mode, establish a connection now:
```

If you have improperly connected the modem to your serial adapter card, or you forgot to turn on the modem, you may get the following message:

```
Communications error. Is the serial line connected?
If not, connect it now and enter a keyboard RETURN.
```

Try to identify and correct the problem now, as you will not be able to establish communications until the problem is corrected.



Call Up an RCPM System

Dial the telephone number of your favorite RCPM system (for a list see *User's Guide* #3). Enter a few carriage returns for the system to acquire your baud rate. Most RCPM systems will automatically acquire your baud rate (either 300 or 1200 Baud) when you type one or two RETURN's (more may be necessary depending on the telephone system's switching delays). The RCPM system should "lock-on" to your baud rate within fifteen to thirty seconds.

The RCPM system signs on with a brief message. Although many RCPM systems tell you that you can bypass the "sign-on" by entering Control-*C*, *DON'T DO IT*! A Control-*C* automatically returns you to the BASICA OK command prompt.

The RCPM system displays the A⟩ prompt to indicate that it is ready for CP/M commands and that you are "logged in" to the disk in drive A.

Type *DIR* and press RETURN for a directory of the disk in drive A; type *DIR B:* or another drive letter, followed by RETURN, for a display of that disk directory. These DIR displays show the files in user area 0 of each disk.

To display the directories of other user areas, type the *USER n* command to switch to user area *n* before typing *DIR*.

You can display a file from the RCPM system on your PC or XT screen by using the TYPE command. For example:

```
A⟩TYPE STARTREK.ASC⏎
```

The contents of the file STARTREK.ASC appears on your screen, and (if you like) you can use Control-*S* as a "toggle" switch to start and stop the scrolling.

Usually a page (24 lines) is displayed until you type any key, and then the next page is displayed. This gives you plenty of time to read each page.

Most RCPM systems now support file "squeezing"; the data content of a file is physically compressed by special encoding techniques to conserve disk space and to minimize phone transfer time.

The "squeezed" files are not regular text files that can be displayed. You need the program TYPESQ.COM to "unsqueeze" them temporarily for display (some RCPM systems use a version of TYPE.COM that includes TYPESQ.COM).

Any file with the letter "Q" in the middle of the three-character extension (also called "file type") is a "squeezed" file. You can download a "squeezed" file, but you need to use the PC-USQ.BAS program supplied in this article to "unsqueeze" it for regular use. The "squeezer" utilities are described in *User's Guide* #3.

Receiving Files From an RCPM System

Check to be sure you have enough storage space on your disk to receive a file (use the CHEKDSK utility program on your IBM PC or XT computer system). Return to the RCPM system, determine which file you want to receive, and use PC-RCPM to command the RCPM system to send the file to your IBM PC or XT computer system as follows:

First press the special function key marked "F2" on your IBM PC or XT keyboard. The PC-RCPM program will request the name of the file that you want to receive from the RCPM system, with the following display:

```
Name of source file on RCPM:
```

Type the name of the desired file followed by RETURN. The PC-RCPM program then asks the name of the file as it is to be received and written to your IBM disk (you don't have to use the same name as the filename on the RCPM system):

```
Name of destination file on IBM-PC:
```

Type the filename and press RETURN. If you have inadvertently typed a filename that is not allowed by PCDOS (some special characters are reserved for special DOS commands), you will see the following message:

```
Bad IBM file: FILENAME.TYPE. Try again!
```

Choose an alternate name for the file to be received and press RETURN.

Files with the extension ".OBJ" on the RCPM system should be received into a file with the extension ".COM" because the ".OBJ" files are really executable CP/M programs (".COM" or ".EXE" files are directly executable). They are put on the RCPM system with the ".OBJ" extension so that you can't run them on the RCPM and possibly cause damage. Usually, you cannot send your disk files with type ".COM" to the RCPM because these files are modified specifically for the RCPM usage, and are probably not compatible with your IBM PC or XT system.

After you choose a good name for the file you are about to receive, your PC or XT sends the following message to the RCPM system:

```
XMODEM SC filename.ext↩
```

This message automatically causes the execution of the file transfer program XMODEM on the RCPM system. The SC command option causes the XMODEM program to *S*(end) the file that you want to receive using the *C*(hecksum) mode.

The XMODEM program sends you a message telling you that it can transfer the file, or that there is an error. XMODEM will tell you the size and the estimated transmission time if the file can be transferred.

Allow about 15 seconds for the programs to synchronize, and the transfer should begin. When you see the message filename.ext successfully transferred and a graphic spade character on your IBM PC or XT screen, press RETURN and you will again see the RCPM system prompt.

Sending Files to an RCPM

You may also use the PC-RCPM program to command the RCPM system to receive a file from your IBM PC or XT computer system.

Press the special function key marked "F1" on your IBM PC or XT keyboard, and the PC-RCPM program will ask the name of the file that you want to send to the RCPM system:

```
Name of source file on IBM-PC:
```

Type the desired filename and press RETURN. If you type a bad filename, you will see the following message:

```
Bad IBM file: FILENAME.TYPE. Try again!
```

Type the correct name for the file to be sent, and press RETURN. You may have typed a filename that does not exist in your PCDOS directory. In this case, you see the message No such file as FILENAME.TYP. Try again!.

After you type a correct name, PC-RCPM asks for the name of the file as it is to be sent and written to the remote RCPM system file directory:

```
Name of destination file on RCPM:
```

Type the desired filename and press RETURN (it does not have to be the same name as the file on your disk). Once a proper filename and RETURN is typed, your PC sends the following command to the RCPM system:

```
XMODEM RC filename.ext↩
```

This message causes the automatic execution of the file transfer program XMODEM on the RCPM system. The RC command option causes XMODEM to *R*(eceive) the file that you want to send using the *C*(hecksum) mode.

Allow about 15 seconds for the programs to synchronize, and the transfer should begin. When you see the message filename.ext successfully transferred and a graphic spade character on your IBM PC or XT screen, press RETURN and you will again see the RCPM system prompt.

Do not attempt to send files of type ".COM", since the RCPM systems will not receive them. Rename such files to have the extension ".OBJ" and then send them (Note: some RCPM systems will automatically rename them for you!).

Communications Utilities on RCPM Systems

RCPM systems support a variety of communications utilities to make things easy for you. For instance, you can change the answer/originate mode of most RCPM systems to originate mode by typing the *FLIP↩* command and changing to answer mode on your end. You do this to improve transmission.

As you become familiar with the programs on the RCPM systems and acquire much of the old stuff, you may be interested in just the new stuff. Many of the RCPM systems have a utility called WHATSNEW that tells you what's new. Check the directory of the RCPM to see if the program is there, and if it is, type *WHATSNEW↩* . Only the new files will be displayed (with the system addition date).

If you need the assistance of the RCPM system operator, or just want to "chat", many of the RCPM's support a utility called "CHAT". Just type *CHAT↩* and wait for a reply from the system operator.

The RCPM system will return to normal in about 30 seconds if the system operator is not available. To log-off the system, type the command *BYE↩*.

Final Notes on Using PC-RCPM

Special function key "F3" causes your IBM PC or XT to act as a terminal (i.e., terminal mode). When you are finished with your communications session with the RCPM system, you are asked to "logout" from the system. You do this by typing the command *BYE↩* or simply pressing function key "F4". The function key entry gives you a prompting message:

```
Logout (Y or N) ?
```

Pressing any key but *N* will automatically send the BYE command to the RCPM. The remote system will then disconnect from the telephone system. Note that this might be your *last chance* to stay on the system, and that once you log off, someone else will probably log on. I'll bet a box of floppy disks that you can't get back on your local RCPM without getting bloody fingers from dialing! Most of the systems are so popular that it takes some persistence to get back on.

Pressing the remaining special function keys "F5" to "F10" causes the PC-RCPM program to display Undefined Function Key Feel free to modify the PC-RCPM to add additional functions for these keys.

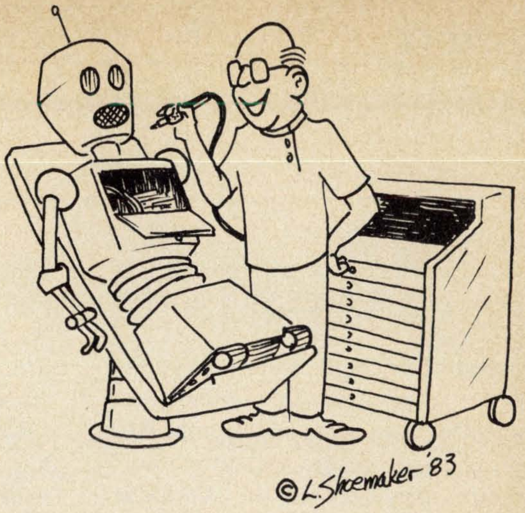
PC-RCPM has been kept simple so that you can type it in with BASICA. PC-RCPM is a simple, no frills means to do data communications with an RCPM. If you want a more sophisticated program, I highly recommend PC-Talk III, a Freeware® data communication program. PC-Talk III and other Freeware programs are available from The Headlands Press, P.O. Box 862, Tiburon, CA 94920. A donation of $35 is requested for PC-Talk "if you use the program." You can copy the program and give it to friends, who should also feel free to donate.

A complete description of calling RCPM systems can be found in *User's Guide* #3, and an updated version with a new RCPM listing is scheduled for a future issue. ◻

The PC-RCPM Communications Program

```
10 ' IBM-PC/RCPM Modem Program Version 1.1 (Ward Christensen Protocol)
20 ' Copyright (C) September 23, 1983 - Kelly Smith, The User's Guide
30 DEF SEG=&H3700:DEFINT A-Z:COLOR 7,0:CLS:TERPROG%=2
40 KEY 1,'''':KEY 2,'''':KEY 3,'''':KEY 4,'''':KEY 5,'''' ' null all functions keys
50 KEY 6,'''':KEY 6,'''':KEY 7,'''':KEY 8,'''':KEY 9,'''':KEY 10,''''
60 ' set up checksum routine
70 READ L:CHKSUM=&H10
80 FOR I%=1 TO L:READ J:POKE &HF+I%,J:NEXT I%
90 ' define ascii control character set
100 NAK$=CHR$(21):ACK$=CHR$(6):SOH$=CHR$(1):CR$=CHR$(13):EF$=CHR$(4):NUL$=CHR$(26)
110 ' define ascii data strings
120 SEND$=''xmodem sc'':RECEIVE$=''xmodem rc'':MODE$=''a''
130 LOGOUT$=''bye'':SYSTEMTYPE$=''RCPM''
140 SCREEN 0,0,0:WIDTH 80:KEY OFF:LOCATE ,,1
150 PRINT ''PC-RCPM Version 1.1, 23-SEP-83 by Kelly Smith'':PRINT:PRINT
160 INPUT''Desired terminal line speed: '',SPEED$
170 IF SPEED$='''' THEN SPEED$=''1200'':LOCATE CSRLIN-1,30:PRINT SPEED$
180 PRINT ''In terminal mode, establish a connection now: ''
190 ON ERROR GOTO 210
200 OPEN ''COM1:''+SPEED$+'',N,8,1'' AS 1:ON ERROR GOTO 0:GOTO 240
210 PRINT ''Communications error. Is the serial line connected?''
220 INPUT ''If not, connect it now and enter a keyboard RETURN.'',A$
230 RESUME 190
240 ' Act as a terminal
250 GOSUB 1240
260 KEY(3) OFF
270 ON TERPROG% GOSUB 1080,1130
280 ON KEYNUM% GOTO 430,1360,240,310,290,290,290,290,290,290
290 BEEP:PRINT ''Undefined Function Key''
300 GOTO 240
310 ' exit and perhaps logout to the RCPM with the BYE command
320 LOCATE 24,1:PRINT SPACE$(79);:LOCATE 24,1
330 INPUT ''Logout (Y or N)?'',YN$
340 IF LEFT$(YN$,1)=''Y'' OR LEFT$(YN$,1)=''y'' THEN 360
350 GOTO 390
360 PRINT #1,LOGOUT$ ' tell'm BYE for now!
370 FOR I%=1 TO 300:NEXT:O$=INPUT$(LOC(1),1) ' flush
380 CLOSE ' restore key parameters to screen display
390 KEY 1,''List '':KEY 2,''Run''+CR$:KEY 3,''Load''+CHR$(34):KEY 4,''Save''+CHR$(34)
400 KEY 5,''Cont''+CR$:KEY 6,'',LPT1: ''+CR$:KEY 7,''Tron''+CR$:KEY 8,''Troff''+CR$
410 KEY 9,''Key '':KEY 10,''Screen 0,0,0''+CR$
420 KEY ON:SYSTEM ' screen is back to normal, exit to dos
430 ' upload file to RCPM
440 LOCATE 24,1:PRINT SPACE$(79);:LOCATE 24,1:KEY 3,CR$
450 INPUT ''Name of source file on IBM-PC: '',F$
460 IF F$='''' THEN 240
470 SOURCE$=F$:DESTIN$=F$
480 IF INSTR(1,F$,'' '')=0 THEN 520
490 SOURCE$=LEFT$(F$,(INSTR(1,F$,'' '')-1))
500 DESTIN$=RIGHT$(F$,(LEN(F$)-INSTR(1,F$,'' '')))
510 GOTO 570
520 IF RECEIVE$=''*'' THEN 560
530 INPUT''Name of destination file on RCPM: '',DESTIN$
540 IF DESTIN$<>'''' THEN 560 ELSE DESTIN$=SOURCE$
550 LOCATE CSRLIN-1,33:PRINT DESTIN$
560 ON ERROR GOTO 590
570 OPEN SOURCE$ AS 2 LEN=128:ON ERROR GOTO 0
580 GOTO 610
```

```
590 PRINT "No such file as ";SOURCE$; ". Try again!"
600 RESUME 450
610 NBLKS!=INT(LOF(2)/128)
620 ON ERROR GOTO 0
630 IF NBLKS!<>LOF(2)/128 THEN NBLKS!=NBLKS!+1
640 PRINT "File is";NBLKS!;"blocks long."
650 CURSAVE=CSRLIN
660 IF RECEIVE$<>"*" THEN PRINT#1,RECEIVE$+MODE$+" "+DESTIN$+CR$;
670 FOR I=1 TO 300:NEXT I
680 WHILE LOC(1)>0:O$=INPUT$(LOC(1),1):WEND 'flush echoing characters
690 LOCATE 25,1:PRINT "From IBM: ";TAB(29);"To RCPM: ";
700 PRINT TAB(62);"Block";TAB(72);"Retry";
710 COLOR 0,7
720 LOCATE 25,11:PRINT SOURCE$;
730 LOCATE 25,38:PRINT DESTIN$;
740 O$=INPUT$(1,1) ' wait for initial nak from RCPM
750 IF O$<>NAK$ THEN 740
760 COLOR 0,7
770 KEY(3) ON:ON KEY(3) GOSUB 1060 ' provide escape feature
780 FOR RECNUM=1 TO NBLKS!
790-FIELD #2,128 AS O$:GET #2,RECNUM ' get a record from the file
800-GOSUB 890 ' send record to RCPM
810 NEXT RECNUM
820 PRINT #1,EF$
830 CLOSE 2
840 COLOR 7,0
850 LOCATE 24,10:COLOR 10,0
860 PRINT SOURCE$;" successfully transferred";
870 KEY(3) OFF
880 COLOR 7,0:GOTO 240
890 ' transmit block to RCPM
900 CALL CHKSUM(O$,CH%)
910 CNT=10
920 O$=SOH$+CHR$(RECNUM AND &HFF)+CHR$((NOT RECNUM) AND &HFF)+O$+CHR$(CH% AND &HFF)
930 LOCATE 25,67:PRINT RECNUM;
940 LOCATE 25,77,0:PRINT 10-CNT;
950 CNT=CNT-1:IF CNT=0 THEN 1050
960 PRINT #1,O$;
970 LOCATE 2,1
980 FOR TIME=1 TO 1000
990-IF LOC(1)=0 THEN 1030
1000-C$=INPUT$(1,1) 'get nak or ack
1010-IF C$=NAK$ THEN LOCATE 1,1:GOTO 940
1020-IF C$=ACK$ THEN RETURN
1030 NEXT TIME
1040 GOTO 940 ' timeout, so try again
1050 PRINT "Ten consecutive NAKs or timeouts, aborting transfer"
1060 CLOSE 2:RETURN 280 'go back to terminal mode
1070 ' call machine language terminal emulator
1080 KEYNUM%=13
1090 LOCATE ,,1
1100 CLOSE 1
1110 A%=256:CALL A%(KEYNUM%)
1120 OPEN "COM1:"+SPEED$+",N,8,1" AS 1:RETURN
1130 ' dumb terminal routine
1140 LOCATE ,,1 ' turn on cursor
1150 ON ERROR GOTO 1220
1160 PRINT #1,
1170 C$=INKEY$
1180 IF LEN(C$)>1 THEN KEYNUM%=ASC(RIGHT$(C$,1))-58:ON ERROR GOTO 0:RETURN
1190 IF C$<>"" THEN PRINT #1,CHR$(ASC(C$) AND 127);
1200 WHILE LOC(1)>0:PRINT CHR$(ASC(INPUT$(1,1)) AND 127);:WEND
1210 GOTO 1170
1220 RESUME ' ignore errors
1230 ' set up status line
1240 CSRSAV%=CSRLIN
1250 LOCATE 25,1:PRINT SPACE$(79);:LOCATE 25,1:COLOR 7,0
1260 LOCATE 25,1:PRINT "F1";:LOCATE 25,23:PRINT "F2";
1270 LOCATE 25,45:PRINT "F3";:LOCATE 25,68:PRINT "F4";
1280 COLOR 0,7
```



"Now this won't hurt one bit."

```
1290 LOCATE 25,3:PRINT '' IBM_>''+SYSTEMTYPE$+'' '';
1300 LOCATE 25,25:PRINT '' ''+SYSTEMTYPE$+''_>IBM '';
1310 LOCATE 25,47:PRINT '' IBM is terminal '';
1320 LOCATE 25,70:PRINT ''Exit '';
1330 LOCATE CSRSAV%,1:COLOR 7,0
1340 RETURN
1350 ' download file from RCPM system
1360 LOCATE 24,1:PRINT SPACE$(79);:LOCATE 24,1:KEY 3,CR$
1370 NBLK=1 ' start with block #1
1380 IF SEND$=''*'' THEN 1460
1390 INPUT ''Name of source file on RCPM: '',F$
1400 IF F$='''' THEN 240
1410 SOURCE$=F$:DESTIN$=F$
1420 IF INSTR(1,F$,'' '')=0 THEN 1460
1430 SOURCE$=LEFT$(F$,(INSTR(1,F$,'' '')-1))
1440 DESTIN$=RIGHT$(F$,(LEN(F$)-INSTR(1,F$,'' '')))
1450 GOTO 1470
1460 INPUT ''Name of destination file on IBM-PC: '',DESTIN$
1470 IF DESTIN$<>'''' THEN 1490 ELSE DESTIN$=SOURCE$
1480 LOCATE CSRLIN-1,37:PRINT DESTIN$
1490 ON ERROR GOTO 1510
1500 OPEN DESTIN$ FOR OUTPUT AS #2:ON ERROR GOTO 0:GOTO 1530
1510 PRINT''Bad IBM file: '';DESTIN$;''. Try again''
1520 RESUME 1460
1530 LOCATE 25,1:PRINT''From RCPM: '',TAB(35);''To IBM: '';TAB(57);''Blk'';
1540 PRINT TAB(67);''Bad'';TAB(74);''Dup'';
1550 COLOR 0,7:LOCATE 25,12:PRINT SOURCE$;:LOCATE 25,43:PRINT DESTIN$;
1560 IF SEND$<>''*'' THEN PRINT #1,SEND$+MODE$+'' ''+F$+CR$;
1570 FOR I%=1 TO 300:NEXT I%:WHILE LOC(1)>0:O$=INPUT$(LOC(1),1):WEND
1580 KEY(3) ON:ON KEY(3) GOSUB 1060 ' provide escape to terminal mode
1590 PRINT #1,NAK$;
1600 LOCATE 25,60:PRINT NBLK;
1610 GOSUB 1720
1620 IF O$=EF$ THEN 1680
1630 IF RIGHT$(O$,1)<>NUL$ THEN 1650
1640 O$=LEFT$(O$,INSTR(O$,NUL$+NUL$))
1650 PRINT #2,O$;
1660 GOTO 1600
1670 ' transfer complete, so ack final block and close up for next command
1680 PRINT #1,ACK$;
1690 COLOR 7,0:CLOSE 2
1700 LOCATE 24,10:COLOR 10,0:PRINT CHR$(7);SOURCE$;'' successfully transferred'';
1710 KEY(3) OFF:COLOR 7,0:GOTO 240
1720 ' receive a block from the RCPM
1730 LOCATE 24,1
1740 FOR I%=1 TO 1000
1750-IF LOC(1)=0 THEN 1770
1760-O$=INPUT$(1,1):GOTO 1800
1770 NEXT I%
1780 PRINT #1,NAK$;
1790 GOTO 1740
1800 IF O$=EF$ THEN RETURN
1810 IF O$<>SOH$ THEN PRINT O$;:GOTO 1740
1820 O$=INPUT$(131,1)
1830 CH%=1 ' compute block checksum
1840 A$=LEFT$(O$,130):CALL CHKSUM(A$,CH%):CH%=CH%+1
1850 IF ASC(LEFT$(O$,1))=(NBLK AND 255) THEN 1870 ' expected block?
1860 DUPS%=DUPS%+1:LOCATE 25,71:PRINT DUPS%;:PRINT #1,ACK$;:GOTO 1740
1870 IF (CH% AND &HFF)=ASC(MID$(O$,131,1)) THEN 1900
1880 BAD%=BAD%+1:LOCATE 25,77:PRINT BAD%;:PRINT #1,NAK$;
1890 GOTO 1740
1900 O$=MID$(O$,3,128)
1910 NBLK=NBLK+1 ' expect next block number
1920 PRINT #1,ACK$;
1930 RETURN
1940 DATA 35
1950 DATA &H55,&H8B,&HEC,&H8B,&HB6,&H08,&H00,&H8A,&H0C,&HB5
1960 DATA &H00,&H8B,&HB4,&H01,&H00,&H33,&HC0,&HE3,&H05,&H02
1970 DATA &H04,&H46,&HE2,&HFB,&H8B,&HB6,&H06,&H00,&H89,&H04
1980 DATA &H5D,&HCA,&H04,0,0
```

Letters...

Editors:

You convinced me with issue #3. If all issues are like this, I'll need them all...

Meanwhile, will someone please give me an answer to this simple question: after I turn on my Compustar, press the red buttons, get the "insert diskette" message, put the WordStar diskette in the "A" drive and get the "A greater-than" go-ahead signal from the machine... can I then remove the WordStar diskette and put another disk in the "A" drive?

It looks as though I've "downloaded" something into the machine's RAM, else why can I do a few CP/M things, like turning on the printer and running STAT B:*.*?

But if I have to leave the WordStar disk in the machine to do any kind of work, how can I transfer files from one disk to another, and how can I make duplicate work disks so I don't lose everything when I lose the one I'm using? (I have both WordStar and CP/M work disks tucked in the keep-safe book, but I don't know how to duplicate either one. My dealer made a duplicate WordStar disk for me, but I don't understand how it is done.)

Right now the only way I've succeeded in moving a file from one disk to another is to copy it from "B" to "A" (the WordStar disk), remove "B" disk and insert another "B" disk , reboot (otherwise I get a BDOS error), recopy the file from "A" disk to the new "B" disk, verify that the transfer has occurred by logging in "B", log back to "A", and kill the file out of "A" (which has only a few spare K's for such maneuvering). THEN remove the new "B" disk, replace it with the old "B" disk, log the "B" drive, and kill the file out of the old "B" disk. THEN log back to "A", remove the old "B" disk which has now been cleaned of the file in question, and replace it once more with the new "B" disk. And go to work.

I've spent an entire day just moving a few files from an overloaded disk to a new disk by this procedure, and the tension is terrific because I fear losing the file altogether in all this disk-swapping. HELP!!

Dave Park
Glendale, MO

Dear Dave,

You cannot, as far as we know, remove the WordStar disk and still use WordStar, because the program has "overlays" (parts of it sitting unused on the disk until called for). However, on two-drive systems such as yours you can make copies of files and disks easily with PIP.

Here are the steps to copy one file, more than one file, or an entire disk of files:

1. *Leave WordStar. Use a system disk in drive A that has the program PIP.COM (it could also have WordStar; PIP only takes up 8K).*
2. *Take your original "work" disk out of drive B, and put a new disk, the "destination" disk, in drive B. Log into the B drive and type a Control-C.*
3. *Log into drive A, type* PIP *and press RETURN. When you see an asterisk (*) and your disk drive stops spinning, remove the system disk from drive A.*
4. *Place the original "work" disk in drive A. To copy one file (e.g., SAMPLE.TXT) from drive A to drive B, type this:*

```
*B:=A:SAMPLE.TXT⏎
```

5A. *To copy* all files *from drive A to drive B, type the following:*

```
*B:=A:*.*⏎
```

5B. *To copy all ".TXT" files, type the following:*

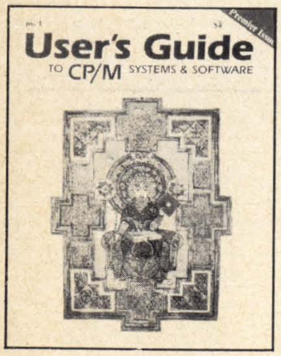
```
*B:=A:*.TXT⏎
```

6. *You get the idea? You can type any number of PIP commands after the asterisk. When you are finished, replace the original "work" disk with the system disk. Then press RETURN. The system disk must be in drive A when you press RETURN, to restart the system.*

Editors:

I have an Osborne 1 and I am interested in getting CP/M 3.0 (or even Concurrent CP/M if it will run on the

Continued on page 84



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Communications Programs: COMMX-PAC and MITE

A feature-by-feature comparison and tutorial of two communications packages for CP/M systems.

by Tony Bove & Cheryl Rhodes

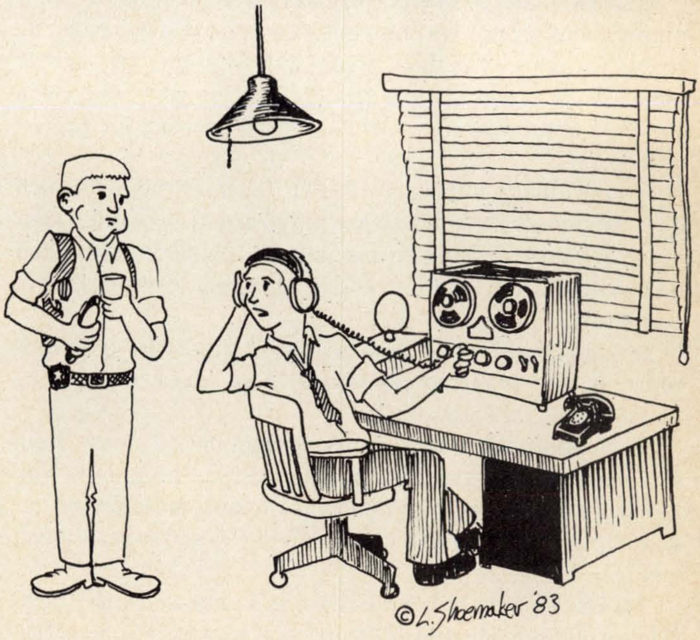
Communication programs perform a lot of the "preliminaries" that are needed for two different computer systems to exchange data. They are necessarily complicated because the differences between computers in receiving or transmitting data are usually the most complicated details about the system.

With a wide variety of CP/M computers on the market, each with different hardware for transmitting and receiving data, most communications programs have to be configured for your system before they will run properly.

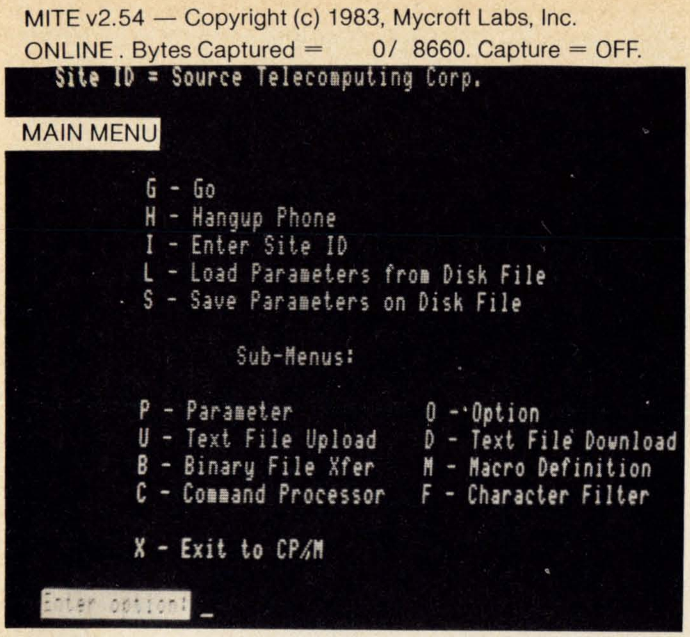
MITE is a program from Mycroft Labs (Tallahassee, FL) that handles most data communications functions.

COMMX-PAC is a package of programs from Hawkeye Grafix (Canoga Park, CA) that includes COMMX, which is similar to MITE, and CONSOLX, which lets an unattended system answer the phone and allow the caller to use the system. The package also includes communications utilities for setting up a call-in bulletin board system or order entry system.

Both packages come with the file "squeezer" utilities, which compress large files into smaller ones for quicker transmissions and more efficient use of disk storage. These utilities are from the CP/M public domain libraries.



"I'm picking up something . . . it's either Morse Code or someone playing Pac Man."



```
MITE v2.54 — Copyright (c) 1983, Mycroft Labs, Inc.
ONLINE . Bytes Captured =      0/  8660. Capture = OFF.
   Site ID = Source Telecomputing Corp.

MAIN MENU

          G - Go
          H - Hangup Phone
          I - Enter Site ID
          L - Load Parameters from Disk File
          S - Save Parameters on Disk File

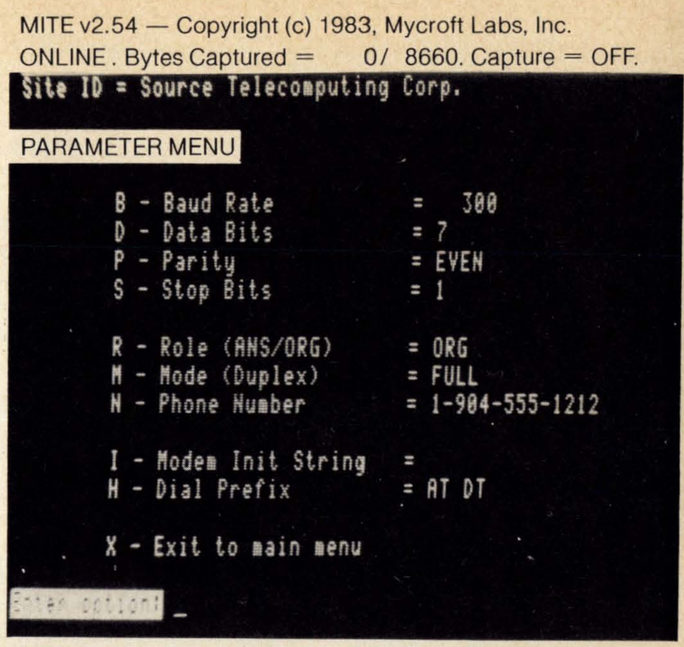
                Sub-Menus:

         P - Parameter            O - Option
         U - Text File Upload     D - Text File Download
         B - Binary File Xfer     M - Macro Definition
         C - Command Processor    F - Character Filter

         X - Exit to CP/M

  Enter option! _
```

Figure 1. *MITE's main menu which is presented at the start of all MITE activities.*



```
MITE v2.54 — Copyright (c) 1983, Mycroft Labs, Inc.
ONLINE . Bytes Captured =      0/  8660. Capture = OFF.
Site ID = Source Telecomputing Corp.

PARAMETER MENU

          B - Baud Rate           =   300
          D - Data Bits           = 7
          P - Parity              = EVEN
          S - Stop Bits           = 1

          R - Role (ANS/ORG)      = ORG
          M - Mode (Duplex)       = FULL
          N - Phone Number        = 1-904-555-1212

          I - Modem Init String   =
          H - Dial Prefix         = AT DT

          X - Exit to main menu

Enter option! _
```

Figure 2. *MITE's parameter menu of transmission settings for speed (baud rate), data bits, parity, originate/answer, half/full duplex, modem codes, and the phone number.*

We compare MITE and COMMX in this article, but remember that COMMX is part of a package that includes other utilities, and may be a better choice because the package offers more.

Using the Menus

COMMX and MITE perform terminal mode as any communications program would, but they present it to you in different fashions. We think that COMMX provides simple menus with direct choices that get out of your way when you're communicating — which may be perfect for experienced users.

On the other hand, we like MITE's menu structure, which gives beginners a chance to learn the structure of data communications: transmission parameters, phone numbers and baud rate are tied together, and local keyboard options are in a separate menu.

It seems that COMMX is easiest for those who know how to use it, and MITE is easiest for those who know nothing about telecommunications.

Each approach is useful to some and not to others. Both are excellent designs for communications programs. You have to judge these programs on many different factors, but start-up menus are important to beginners and experts alike:

MITE: The main menu (shown in figure 1) doesn't mention terminal mode, but it's there as *G* (Go Start Communications), which puts you in terminal mode. However, if you were planning to make a phone call with MITE and hook-up to a system, you would start with *P* for the Parameter menu (shown in figure 2).

The default settings for MITE parameters are usually okay for calling CompuServe, The Source and other such systems. Full duplex mode in MITE allows *echo-plex*, which is essential for terminal mode: a display of a typed character occurs when the "host" system returns ("echoes") the character to your computer. Your modem must be in full duplex mode.

Half duplex mode is useful in two ways: it can put you in "conversational" mode with another computer that is in terminal mode, and you can use it with a half-duplex line (for one-way at a time transmission).

The baud rate can be any speed handled by the modem you are using. Data bits are either seven (for most terminal mode communications and no-protocol text file up/downloading), or eight (for error-free file transfers). Parity is off for eight-bit data, and usually even for seven-bit terminal-/conversational mode communications. Stop bits are usually one for 300 baud, and two for 1200 baud and up.

The role (originate/answer) should be ORG for making phone calls and connecting with a computer that answers the call. Use ANS mode for answering your phone (your computer plays "host"). You can use ANS mode with acoustic coupler modems that support it, even though you will have to answer the phone yourself.

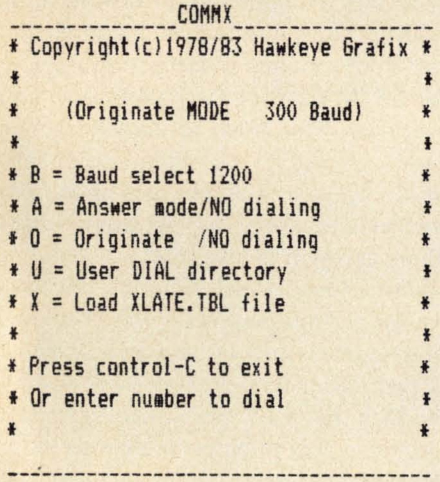
Put the phone number in this menu (include area code for long distance numbers), and include the dialing prefix for your modem. For example, the Hayes Smartmodem requires the prefix *ATD* to dial a number.

When you are finished with the parameter menu, type *X* to return to the main menu. At this point you can start communicating, but first you might want to save these parameters for quick calling the next time. Before saving, use *I* to place a heading next to the Site ID display at the top of the screen, to identify these parameters (e.g., *CompuServe* or *The Source*). Do *not* use passwords or actual ID numbers.

Save the parameters to a disk file using the *S* option and providing a filename. The file is stored with the ".PAR" extension.

To start dialing, type *G* to "go." MITE dials the number, establishes a connection, and puts you in terminal (or conversational) mode. To leave terminal mode, type Control-*K* and MITE returns you to the main menu. You can change this command if Control-*K* is reserved for some other use by the system you are calling. The options menu (*O* from the main menu) lets you change several control-character commands.

COMMX: The starting menu for COMMX (figure 3) is simpler and provides fewer start-up options. COMMX menus do not require screen codes, which makes COMMX very easy to install for any terminal or screen.



```
_______________COMMX__________________
* Copyright(c)1978/83 Hawkeye Grafix *
*                                    *
*    (Originate MODE   300 Baud)     *
*                                    *
* B = Baud select 1200               *
* A = Answer mode/NO dialing         *
* O = Originate  /NO dialing         *
* U = User DIAL directory            *
* X = Load XLATE.TBL file            *
*                                    *
* Press control-C to exit            *
* Or enter number to dial            *
*                                    *
--------------------------------------
```

Figure 3. *COMMX start-up menu, from which you can change the major settings and make calls.*

No parameters are required yet — the default settings are seven-bit data and one stop bit. If your modem can dial and make a call (the Smartmodem has this ability), you can type the phone number, preceded by a *T* for touch-tone dialing, and press RETURN to make the call.

When connection is established you are placed in the LOCAL MODE menu:

```
    Press A thru P for DIRectory or:

1) COMMAND MODE      5) CONSOLE ECHO IS : ON
2) RENAME FILE       6) CONTROL CHARACTER DISPLAY :
                        OFF
3) DELETE FILE       7) 8 BIT DATA ENABLED
4) DRIVE (A:) USER (0)  8) EXIT PROGRAM
```

There are three parameters here that may need attention. If you are planning to make error-free file transfers of eight-bit ("binary") files such as WordStar documents or executable programs, press *7* to enable the transfer of eight-bit data.

If you are calling an unknown system and you want to know what control characters it is sending to you (*not* recommended for ordinary calls to CompuServe, The Source, etc.), type *6* to turn on the control-character display.

Third, if you are transferring files quickly and you don't want the contents displayed (to make the transfer quicker in some cases, or to accommodate ROM video drivers in some computers), type *5* to turn off the console echo.

Repeat any of these commands to reverse their function. Most users need only to enable eight-bit data occasionally (for error-free file transfers), and can ignore the others.

This menu also gives you power to make changes on your disks, to make space for new data (delete file option), to rename existing files (rename file option), and to change disks (option 4, which shows the currently "logged" disk). You can display a directory of any active drive by typing the letter of the drive (e.g., *A:* for drive A).

After making such changes if you have any to make, go to the next menu (COMMAND MENU) by typing *1*:

```
1) LOCAL MODE          5) CONVERSATIONAL ⟨HDX⟩
2) TERMINAL ⟨FDX⟩      6) COPY FROM COMMX
3) COPY FROM HOST      7) SEND TO COMMX
4) SEND TO HOST (0)    8) CREATE LOG FILE

A) PRINTER: OFF (0)    C) COPY FROM MODEM7
B) RECEIVE FILTER: (0) D) DONE EXIT
```

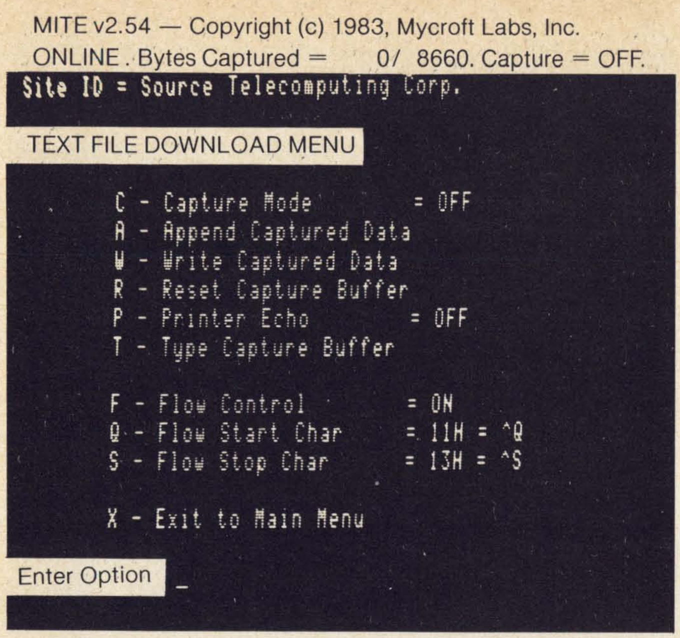
Option *2* puts you in terminal mode, full duplex with echoplex. Or you can select conversational mode (half duplex, no echo-plex). From either of these modes type Control-*E* to return to this menu.

Capturing Displayed Text on Disk

Although COMMX and MITE perform these functions adequately, we use the latest versions of Modem7 for this function because it lets us capture data immediately by typing Control-*Y*, and stop capturing with another Control-*Y*, so that we can be selective about what we capture. Neither COMMX nor MITE offers this; however, Modem7 does not answer our every need, and it does not automatically save the captured text as do COMMX and MITE.

MITE: MITE offers a capture option in the text file downloading menu (figure 4). MITE gives you complete control of the capture buffer. You open the buffer by turning capture mode on. You specify a filename at that time, and MITE is set up to capture the displayed text.

You return to terminal mode to continue your session with capture mode on. At any time you can type Control-*K* to return to the main menu, and *D* to return to the download menu, to turn capture mode off and write the data to the file, or append it to the file and return to capture more data. In



```
MITE v2.54 — Copyright (c) 1983, Mycroft Labs, Inc.
ONLINE . Bytes Captured =      0/  8660. Capture = OFF.
Site ID = Source Telecomputing Corp.

TEXT FILE DOWNLOAD MENU

        C - Capture Mode          = OFF
        A - Append Captured Data
        W - Write Captured Data
        R - Reset Capture Buffer
        P - Printer Echo          = OFF
        T - Type Capture Buffer

        F - Flow Control          = ON
        Q - Flow Start Char       = 11H = ^Q
        S - Flow Stop Char        = 13H = ^S

        X - Exit to Main Menu

Enter Option  _
```

Figure 4. *This MITE menu lets you capture displayed text, echo displayed text on the printer, and control the flow of text file downloading.*

either case, you can also reset the buffer.

Why would you want to reset the buffer? To empty it for new contents if MITE cannot automatically do so. MITE can do it if your system uses XON/XOFF (the default).

When you are in terminal mode with CompuServe or The Source, you can stop displaying text by typing Control-*S*, and continue by typing Control-*Q* These control characters appear in the download menu as the Flow Start and Flow Stop characters. This is called the XON/XOFF protocol.

When the capture buffer fills up, MITE usually sends a Control-*S* (XOFF) to the system to stop the display while it saves the buffer in the file, and Control-*Q* (XON) to start the display again when the buffer is ready. If the system uses characters other than Control-*S* and Control-*Q*, substitute the control-characters it uses for the flow start and stop characters.

If the system does not use any control-characters to start and stop displays, you have to use some other method to stop the display. You also have to return to the download menu to write the buffer's contents to disk and reset the buffer. If you exit MITE and forgot to write the buffer contents to a file , Mite automatically does so. MITE gives you control over the capture buffer, which is excellent for capturing data in special situations, and is not confusing to beginners. However, it takes a few keystrokes to accomplish it.

COMMX: COMMX makes it a little easier to create a "log file" of your terminal mode session. Type Control-*E* to leave terminal mode for the command menu, and type *8* to create a log file. Supply a filename, and COMMX captures all data displayed or typed in terminal mode, or sent to you in conversational mode.

Press Control-*E* to leave terminal or conversational mode, and the log file is automatically saved and closed. You can then specify another log file to capture more data.

The log file buffer is not a concern for you, because COMMX empties the buffer when it writes to the file. COMMX supports the XON/XOFF protocol to stop displays and continue them after saving the file.

COMMX makes it very easy to capture your session on disk, with less keystrokes than MITE. COMMX (like MITE) does not let you selectively capture text while in terminal mode like Modem7; then again, Modem7 does not provide many other features provided by COMMX and MITE.

Capturing To Print or to Filter Out

Both COMMX and MITE let you capture the session on your printer if your printer is connected at a baud rate faster than your modem transmission rate. In many cases it is preferable to save the data on disk first, then print it out. Sometimes the system locks up when using the printer and modem ports at the same time.

MITE provides the option in the download menu (figure 4). COMMX provides it in the command menu — one keystroke away from terminal mode (Control-*E*), and also lets you use the CP/M Control-*P* toggle to turn on and off the printing operation. This might actually be dangerous for beginners to use, especially if the system is not configured properly for simultaneous printer and modem activity. However, we find it useful to occasionally print what is displayed on the screen without saving it to disk first.

It is sometimes useful and sometimes necessary to filter out of reception certain characters sent from some host computers. For example, some host computers send rubouts (7F in hex) as pad characters, erasing what you typed on the screen. The Dow Jones Service sends the code 1EH (hexadecimal) which causes some computers to move the cursor without clearing the screen.

COMMX provides a receive filter in the command menu (*B*) and lets you type the character's hexadecimal code (two digits or the letters A through F). COMMX automatically filters nulls (00H) and rubouts (7FH).

MITE excels in this function by providing a menu (*F* from the main menu), with nine slots for characters to filter besides rubout (7FH). You can type each character's hex code, or decimal equivalent, or use a caret (↑) to stand for the Control key (e.g., ↑*F for Control-F*).

Uploading/Downloading Files

Uploading, or sending information to a host computer, is supported by nearly all communications programs. It is also one of the hardest functions to perform correctly with an unknown host computer.

The host must set up to receive the file. Depending on the host system, you may need a delay in the transmission of each line, so that the host computer has a chance to "catch up" and receive the characters at the beginning of each new line. Some hosts are so finicky that you have to use a delay between characters to avoid "dropping" characters.

Downloading is much easier. You set up the program to receive the text into a file, and then, on most host computers, you use a command to display the host file.

MITE: Downloading is the simple capture of the display into a file, using flow control (figure 4). The flow control is usually Control-*S*/Control-*Q* (XON/XOFF). MITE lets you change these to any control characters.

The text file upload menu (figure 5) shows the flow control options. The inter-character delay is from 0 to 255 milliseconds, and slows down the transfer in full or half duplex modes (it's the only way to slow down half duplex transfers).

The *E* (wait for echo) option enables a mode where each character is sent only after the last one is "echoed" by the host (i.e., received and sent back by the host).

The *H* option selects "end-of-line handshake" mode, where each line is sent after receiving a line-feed code from the host computer. Most time-sharing services operate in this mode.

The *T* option lets you specify a "turnaround" character — each line is transmitted after MITE receives this character from the host computer. This is sometimes a question mark or colon sent by the host to signal the beginning of a line.

The *G* option lets you set the number of "garbage" characters to ignore when sent by the host. MITE will wait a half-second for each "garbage" character. This is useful when uploading to a host that is sending a line number at the beginning of each line.

You could use some of these options together, such as *T* and *G* to wait for a character and ignore the next two characters, then send the next line.

MITE has excellent flow control options, presented in a clear and easy to use menu. You can store the upload and download settings with other parameters in a parameter file associated with a site ID.

COMMX: presents the flow control options one at a time when you select the SEND TO HOST option (*4*) from the command menu.

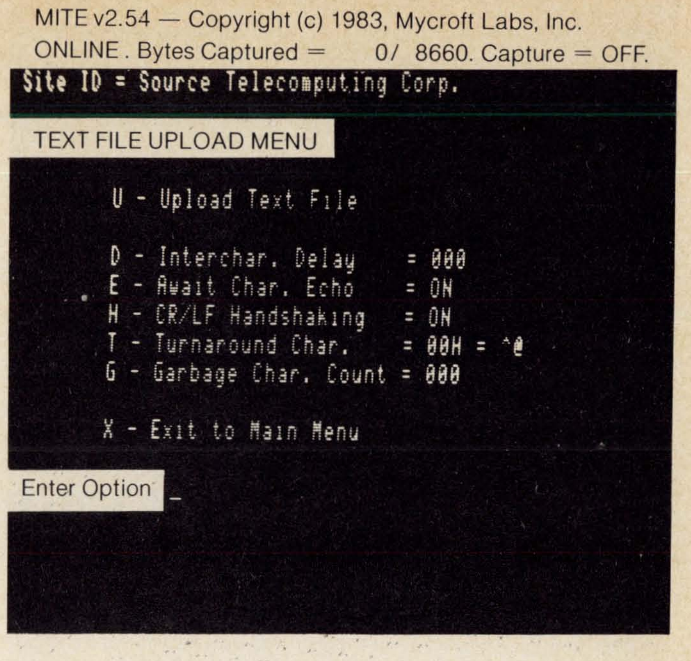
The "ultimate" flow control is echo-plex, where each character is sent to the host only after COMMX receives the previous character "echoed" by the host. COMMX first asks if you want this type of control, called *full echo wait*:

```
SELECT NO (N) OR FULL (F) ECHO WAIT:
```

If you select *F*, COMMX asks no more questions on flow control. If you select no echo wait (*N*), COMMX asks for a "speed throttle":

```
SELECT SPEED THROTTLE (0-9):
```

The "throttle speed" is an inter-character delay amount between 0 and 9 corresponding to multiples of 50 milliseconds. This "fine tuning" of the data flow may be useful when uploading to some host systems. Type a zero if you want no delay.



```
MITE v2.54 — Copyright (c) 1983, Mycroft Labs, Inc.
ONLINE . Bytes Captured =      0/  8660. Capture = OFF.
Site ID = Source Telecomputing Corp.
TEXT FILE UPLOAD MENU

      U - Upload Text File

      D - Interchar. Delay    = 000
      E - Await Char. Echo    = ON
      H - CR/LF Handshaking   = ON
      T - Turnaround Char.    = 00H = ^@
      G - Garbage Char. Count = 000

      X - Exit to Main Menu

Enter Option _
```

Figure 5. *MITE's Upload menu provides character-by-character and line-by-line flow control for sending data to the host computer.*

COMMX asks if you want any special line delay character. Press RETURN to continue with no delay or to use regular line delay; otherwise type the character to use as a "turnaround" character. For example, for IBM TSO systems, you would type the hexadecimal number *11* (11H, or Control-*Q*) for the line pause character. COMMX waits to receive this character before sending each line.

If you press RETURN only, you'll see the following:

```
ENTER LINE DELAY (0-9):
```

For host systems that require some line delay but do not send a character, type a number from 0 to 9 representing the number of seconds for the line delay.

COMMX displays the message:

```
ENTER HOST MESSAGE TO RECEIVE FILE
```

Type the command to set up the host system to receive the file. COMMX displays:

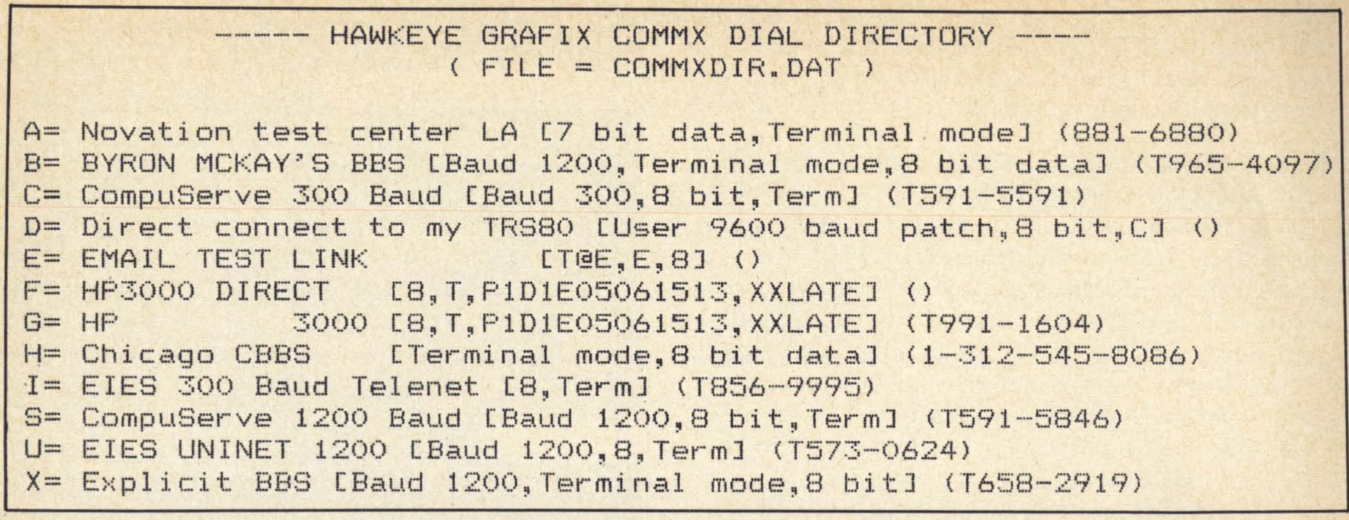
```
WHEN THE HOST IS READY PRESS RETURN
```

Simply press RETURN to start the transmission.

COMMX uses the XON/XOFF protocol for downloading to your computer. When you select the COPY FROM HOST option (*3*) from the command menu, you are given the chance to use a special DC2/DC4 RX mode if supported by the host computer.

COMMX handles downloading simply and easily, but without flow controls other than XON/XOFF. Also, you must type a Control-*Z* to tell COMMX you've reached the end of the downloaded file.

COMMX uploading provides nearly the same flow control options as MITE. MITE provides an option for the "end-



```
          ----- HAWKEYE GRAFIX COMMX DIAL DIRECTORY ----
                    ( FILE = COMMXDIR.DAT )

A= Novation test center LA [7 bit data,Terminal mode] (881-6880)
B= BYRON MCKAY'S BBS [Baud 1200,Terminal mode,8 bit data] (T965-4097)
C= CompuServe 300 Baud [Baud 300,8 bit,Term] (T591-5591)
D= Direct connect to my TRS80 [User 9600 baud patch,8 bit,C] ()
E= EMAIL TEST LINK        [T@E,E,8] ()
F= HP3000 DIRECT   [8,T,P1D1E05061513,XXLATE] ()
G= HP          3000 [8,T,P1D1E05061513,XXLATE] (T991-1604)
H= Chicago CBBS     [Terminal mode,8 bit data] (1-312-545-8086)
I= EIES 300 Baud Telenet [8,Term] (T856-9995)
S= CompuServe 1200 Baud [Baud 1200,8 bit,Term] (T591-5846)
U= EIES UNINET 1200 [Baud 1200,8,Term] (T573-0624)
X= Explicit BBS [Baud 1200,Terminal mode,8 bit] (T658-2919)
```

Figure 6. *COMMX provides a phone number directory with transmission parameters and keyboard macros for automatic dialing and logging-on to host systems.*

of-line handshaking" mode (carriage return at end of line is sent, a line feed is echoed back, then the next line is sent); in COMMX, you select line feed (0AH) as the line pause character. MITE also has the "garbage character count" option with a half-second count for each ignored "garbage" character sent by the host. In COMMX you would set a line delay of a few seconds to take care of garbage.

COMMX lets you put other downloading and uploading protocols such as STX, ETX, ACK, NAK, etc. with the *P* parameter in a phone directory entry. A sample phone directory is shown in figure 6).

Error-free File Transfers

COMMX lets you send and receive with its own error-detecting protocol (the COMMX protocol), and it lets you *receive* files using the common Xmodem/Modem7 protocol (also known as the *Christensen Protocol*, invented by Ward Christensen). This is useful for receiving public domain software from remote bulletin board systems that use Xmodem, but not for *sending* software to such systems, or to other computers using Modem7.

(The reason for the receive-only restriction: to keep people from pirating versions of COMMX itself, by sending a configured version to another computer using Modem7. By requiring use of the COMMX protocol to send binary files, the receiving computer must already be running a version of COMMX. Although the protection against privacy is valid, we think that COMMX will soon be revised to allow both sending and receiving via Xmodem/Modem7.)

MITE allows both sending and receiving using Xmodem-/Modem7; however, MITE does not allow *batch mode* sending and receiving — the ability of Modem7 to send or receive several files at once, with their filenames. It is to COMMX's credit that it has the ability to receive files in batch mode using the Xmodem/Modem7 protocol.

MITE also has the CLINK/XTALK protocol used by Crosstalk and other commercial communications programs. The IBM Asynchronous protocol is supported by MITE and COMMX.

Of what importance is it to have the ability to send and receive using the Xmodem/Modem7 protocol? If you already have Modem7, a public domain program that implements file transfers and all the other functions mentioned above, then you don't need this feature — you're interested in the special features offered by commercial packages that are not found in Modem7.

In fact, this is the conclusion we came to, since we have Modem7 operating on all our computers (Alspa ACI, Osborne, Kaypro and others), and we have PC-Talk III (another "free" program using the Modem7 protocol) for the IBM PC.

We saw other advantages to buying COMMX or MITE — mostly the special features mentioned below. However, if you're considering one or the other as the *only* communications program you will use, consider the fact that MITE allows two-way Xmodem/Modem7 transfers without batch mode, and COMMX allows you to receive using this protocol in both single file and batch modes.

Phone Directory

In most cases you will want to make phone directory entries corresponding to frequently-called networks and computers. The directory entries can have defined transmission parameters. In COMMX you can also put an automatic start-up of terminal mode, conversational mode, or other activity (such as special Telex link-up), and bypass all menus. This is the preferred method of setting up routine calls to The Source, CompuServe, Telex and other services.

MITE: Rather than having a directory with numbers, MITE provides a parameter file for each number. You set all the options and parameters you need for a given "site" (call-up system), including the phone number (unless you are creating a parameter file for a direct connection without phone), and you save the file by a name of your choosing. The file is saved with the extension ".PAR" for parameter file.

The disadvantage here is that each parameter file takes up 2K of disk space (a CP/M file of the smallest possible characters takes up 2K). The concept is excellent for beginners, who can easily set the parameters for each system they call, and store them in files named for each system. However, users have to remember the parameter filenames of the systems they are calling. You can make use of this to allow some users access to certain systems but not to other systems (provide only the parameter files needed by the users).

COMMX: COMMX has a useful phone directory in one file, COMMXDIR.DAT. The entries are not easy for beginners to code. Figure 6 shows sample entries in COMMXDIR.DAT. The first letter is used to call that entry from the menu. The following text can be any identifying heading. The words or abbreviations within square brackets are transmission controls, and the numbers in parentheses are phone numbers as they are to be dialed (*T* for touch-tone).

You can select a directory entry which calls the number, sends an "auto-logon" macro to log onto the system automatically, and puts you right into terminal mode automatically, without your having to type another key (MITE also has this feature — see keyboard macros).

COMMX can store up to 26 entries in the phone directory and take up very little disk space compared to 26 parameter files. (MITE, however, offers you an infinite number of parameter files, but no special directory from which you could select one.)

Making directory entries in the COMMX phone directory requires looking at the manual. If you use COMMX you will want to set all your parameters this way, to avoid the abrupt COMMX questions and lack of explanatory menus. MITE's menus can be fun and reassuring, but slower.

COMMX lets you specify a phone directory entry in its command line, bypassing all menus and going directly to terminal mode if the directory entry contains an automatic terminal mode command. MITE lets you specify a parameter file in its command line, loading the file before showing the main menu (where you type *G* to start). COMMX uses the directory entry and starts dialing immediately or establishes a direct connection.

Keyboard Macros

Both programs excel in this category. A *keyboard macro* is a string of characters sent as if from the keyboard whenever you type the single-letter macro identifier. An *auto-logon macro* is a keyboard macro with a sequence of characters sent over the phone line to establish connection and logging-on, including ID number and password.

MITE provides nine macro string entries for keyboard macros, with the ninth sent automatically as an auto-logon macro after establishing connection, and the eighth available for use in establishing TWX compatibility. It is easy to enter the macro strings and try them immediately.

To execute a MITE macro, type Control-*[* (or whatever control character you've assigned to the *macro trigger* in the Options menu), and the number of the macro. To execute a COMMX macro, type Control-*K* and the letter of the macro.

COMMX provides a way to have up to 26 keyboard macros defined in a text file. After defining the macros, you use a "build" utility to convert the file into a keyboard macro command file for use with COMMX. This process is slower than MITE's menu-driven entries, but allows more entries.

Control-key commands used as "triggers" in MITE's *Option* menu can be changed. In COMMX you can't change the Control-key triggers without using a "patching" program such as DDT. COMMX uses Control-*E* to leave terminal mode, Control-*K* to execute a keyboard macro, and Control-*O* to override and send the next Control-*E* or Control-*K* to the other system.

On Balance...

The programs approach the same functions differently, appealing to different types of users. We don't recommend either program without mentioning both, because both have good reasons for their appeal.

MITE has two-way file transfers using Xmodem/Modem7, whereas COMMX allows only receiving with this error-checking protocol. However, COMMX allows batch-receiving with this protocol, and COMMX provides its own protocol for sending and receiving.

COMMX has more keyboard macro entries, MITE an easier way to make them. MITE also lets you change the "trigger" characters easily in its Options menu.

We use COMMX more often than MITE because we put together a good automatic dialing directory. We use MITE on our Kaypro at the office because some office people prefer using the menus.

With the entire COMMX-PAC you can set up an unattended system to answer the phone and give the caller control of the system. We use this to set up a system at the office that we can call from a computer at home. COMMX-PAC also comes with its own electronic mail facility (to be described in a future issue). These functions cannot be found in MITE or in other packages, although MITE lets you set up an unattended system to answer the phone.

Both programs handle the latest services such as CompuServe, The Source, Dow Jones and Telex. Both programs allow easy communication with mainframe host computers, with flow control and transmission parameters.

If you don't need a nice unattended system for you and others to call up and leave messages (COMMX-PAC provides this), or if you desperately need Xmodem/Modem7 capability in one program, you should get MITE. Otherwise, the choice depends on a variety of needs and tastes.

One thing is certain. You should get a communications program and a modem, and join the information age.

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(answering the call), the acoustic tone is high-pitched. For communication to occur, one modem must be in answer mode, and the other must be in originate mode. You can switch modes once communication is established if both sides switch accordingly. Use originate mode to make calls.

parity: Data stored in ASCII format (letters, digits, symbols, etc.) occupy the first seven bits of an eight bit data byte. The eighth bit (called the parity bit) is sometimes used to detect errors in transmission of the first seven bits. This parity bit has a value of zero or one, depending on whether there are an even or odd number of ones in the seven bit ASCII character code associated with it. An even parity system is one with an even number of one bits (including the parity bit). Parity (perhaps the simplest error detection method) can always detect a single bit error, but is not regularly used in personal computer communications.

RCPM: Remote CP/M (RCPM) systems are CP/M (or MP/M) systems that are set up to answer calls from remote computers and download CP/M software and data files to these remote computers. The RCPM systems provide most of the public domain (free) software for CP/M systems, for downloading to anyone with a CP/M system running the MODEM7 or MODEM4 program (no passwords or fees). See the article on RCPM systems in this issue.

RS-232: The Electronics Industry Association (EIA) has developed a standard for computer-phone communication, known as the EIA RS-232C standard. The standard specifies the hardware connection between the computer and modem, as well as the serial transmission protocol. Usually RS-232 cables come with "male" DB-25 connectors that plug into "female" DB-25 ports on the computer and on devices.

seven-bit data: Most text characters use seven of the eight bits in each byte, and such characters can be transferred without error-checking in seven-bit transmissions. See also *eight-bit data.*

Source: The Source is an information service operated by Source Telecomputing Corp., a subsidiary of The Reader's Digest Association, Inc., with headquarters in McLean, Virginia. The Source began in 1979, was bought by Reader's Digest in 1980, and now offers over 1000 data bases and services including electronic mail. For more information, contact Source Telecomputing Corp., 1616 Anderson Rd., McLean VA 22102.

synchronous transmission: If the sending and receiving computer systems are synchronized or operating at the same speed, synchronous transmission of data can occur. In synchronous transmission, data is transmitted at a fixed rate, with equal delays between transmission of each character. Compare with asynchronous transmission.

sysop The system operator of a RCPM, CBBS or ABBS is the *sysop.* A *sysop* is usually the owner as well as operator for the system, and knows all about the implementation and operation of remote CP/M systems or bulletin board systems. The *sysops* of free (non-password) systems are dedicated computerists who spend a considerable amount of time, effort and money organizing these systems without profit. They perform a valuable public service by providing public domain software and information to users, and a medium for information and software exchanges.

telecommunications: The transmission of data to and from computers and terminals via phone lines, cable, optical fibers, TV, FM radio waves or satellite transmission.

Telenet: A telecommunications network operated by the GTE Telenet Corporation (Vienna, VA). If CompuServe or The Source has no local number for you to call, you may be able to access either The Source or CompuServe through Telenet, which has local phone numbers in major cities throughout the U.S.

terminal mode: A communications program makes a personal computer act like a "terminal" on the host computer. When two computers are communicating, one is usually in terminal mode, and the other is usually in conversational mode.

Tymnet: A telecommunications network operated by Tymnet Inc. (Cupertino CA). If CompuServe or The Source has no local number for you to call, you may be able to access either The Source or CompuServe through Tymnet, which has local phone numbers in major cities throughout the U.S.

UART: UART stands for Universal Asynchronous Receiver/Transmitter, and it is usually implemented as an integrated circuit that converts a set of serial data signals into a parallel signal, and vice-versa, for use in interfacing a parallel data path (where each piece of data is an 8-bit byte) to a serial data communications network (where each piece of data received is one bit).

uploading: The act of sending data to a host computer to be stored in a file on the host computer's disk. Uploading of data can occur with or without error-checking.

Videotex: Any system providing either two-way "viewdata" (also called "videotext") or one-way "teletext" services. Videotex services are operating in the United Kingdom, France, Japan and Canada. Viewdata was the trade name of a videotex service (now called Prestel) that provided two-way computer communications for British homes equipped with modified televisions and regular telephones. CEEFAX and ORACLE are trade names of a teletext-type videotex service that broadcasts "pages" of information one-way to British viewers with modified television sets (using the vertical blanking interval in the television signal). These two types of services have recently been referred to as "broadcast videotex" (teletext) and "interactive videotex" (viewdata).

CompuServe uses the word "videotex" to describe its main menu service (e.g., CompuServe without the Personal Computing Service). Both Compu-

Serve and The Source are said to be videotex services, even though neither provides color graphics like the European, Canadian and Japanese systems.

Xmodem: A program found on RCPM systems that lets you download software using the error-checking Christensen protocol, more commonly known as the Xmodem/Modem7 protocol. Xmodem allows only single-file transfers of files that do not have ".COM" as the filename extension.

XON/XOFF: The XON (Control-Q) and XOFF (Control-S) protocol is a popular one used in data communications between host computers and terminals as well as between two personal computers or two large computers. Usually the XON/XOFF protocol is "invisible" to the user and completely automatic. Users use the protocol (sometimes without knowing it) whenever they use Control-S to stop their screen's scrolling activity and Control-Q to resume the scrolling activity. See *Control-Q.*

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In the final analysis, the best thing you can do is to request your dealer to demonstrate each program in depth (if possible) so you can see them in action. Arrange to play with the software a little bit to determine what feels best for you. A local consultant may be able to offer instruction and advice as he evaluates your needs.

When all is said and done, you need to choose the package best suited to your primary production requirements. When you have that one under control, you may wish to branch out in new areas and learn new software.

Editor's comments:

We agree that WordStar's keyboard commands are hard to learn, but in our opinion, once they are learned, they are not clumsy. The commands are closer to the touch-typist's resting place (the "ASDF JKL;" keys), and the Control key is close to the SHIFT key on most keyboards. As WordStar users we found Perfect Writer's mnemonic commands harder to remember and clumsier than WordStar's.

We also agree with the problem of long documents with WordStar. We store up to seven pages in one file before starting another file. However, we have edited very large documents with WordStar, and we've never lost data. When scrolling backwards, WordStar may not be able to display the data for some unexplained reason; however, no data is lost as far as we know.

We agree with Tom's conclusion, even though we use WordStar for nearly every writing and editing task. There are times when we would like to have seven files open at once (although we can't use this feature without a lot of disk storage — perhaps a hard disk), and there are times when we wished we had true proportional spacing. But not too often.

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8. Using the ↑*QA* command again, find the end of "hard" line marker you invented, and replace it with ↑*N* to end each "hard" line. You may want to replace it with ↑*N*↑*N* to put a blank line after each "hard" line. Press RETURN, and type *GN* followed by RETURN for the option. Press your space bar to speed up the operation.
9. When it finishes, press your ESCape key, then save your text with ↑*KD.* Return to edit the text again in document mode, from the beginning of the file.
10. Now type ↑*QQ* followed by ↑*B* Type *1* to speed up the operation. The ↑*QQ* command repeats the ↑*B* command over and over to re-form each paragraph. When it finishes, you have a WordStar document-mode text file.

There may be more things to change. For example, if you used Perfect Writer printing codes, you have to search for every @ symbol to find each one and change it to a WordStar code.

For example, you might use ↑*QA* to find every occurrence of @B [(the bold-printing code in Perfect Writer) and replace it with ↑*PB* (the WordStar bold-printing code, which displays as ↑B in the file). The problem is, the "bold turn off" code in Perfect Writer is a simple closing bracket that matches the opening bracket used in the @B [code. You can't simply search for the symbol] and replace it with the "turn off bold" code (another ↑*PB*). Most of these codes must be replaced by hand.

Fortunately, WordStar lets you search for nearly anything, and then change it by hand. The ↑*QF* command searches for any character or printing code, and puts the cursor at the character following it, so that you can use your delete key to erase the code, and simply type the new code (if insert mode is on).

NOTE

You can't use ↑*QF* or ↑*QA* to search for WordStar's underlining code, ↑*PS,* because it is reserved for use in finding "any special character" such as an end-of-line, "soft" hyphen, or "soft" space). You can, however, search for other WordStar printing codes, and you can *replace* text with a WordStar underlining code or other printing code.

The entire conversion could take a few minutes for each file, but it may be worth the wait to be able to edit the files with WordStar. There are ways to make files easier to convert. For example, doing without printing codes until you need them is one sure method of keeping files compatible. Keeping the files small makes the conversion process less time-consuming. And referring to a printout while making the conversion can be helpful.

If you've ever compared Perfect Writer to WordStar, you know that there are reasons for using both programs. There will always be a need to know how to convert other text files to WordStar document files, if only to provide the files to other WordStar users who, at last count, outnumbered Perfect Writer users over seven to one.

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Product Announcements

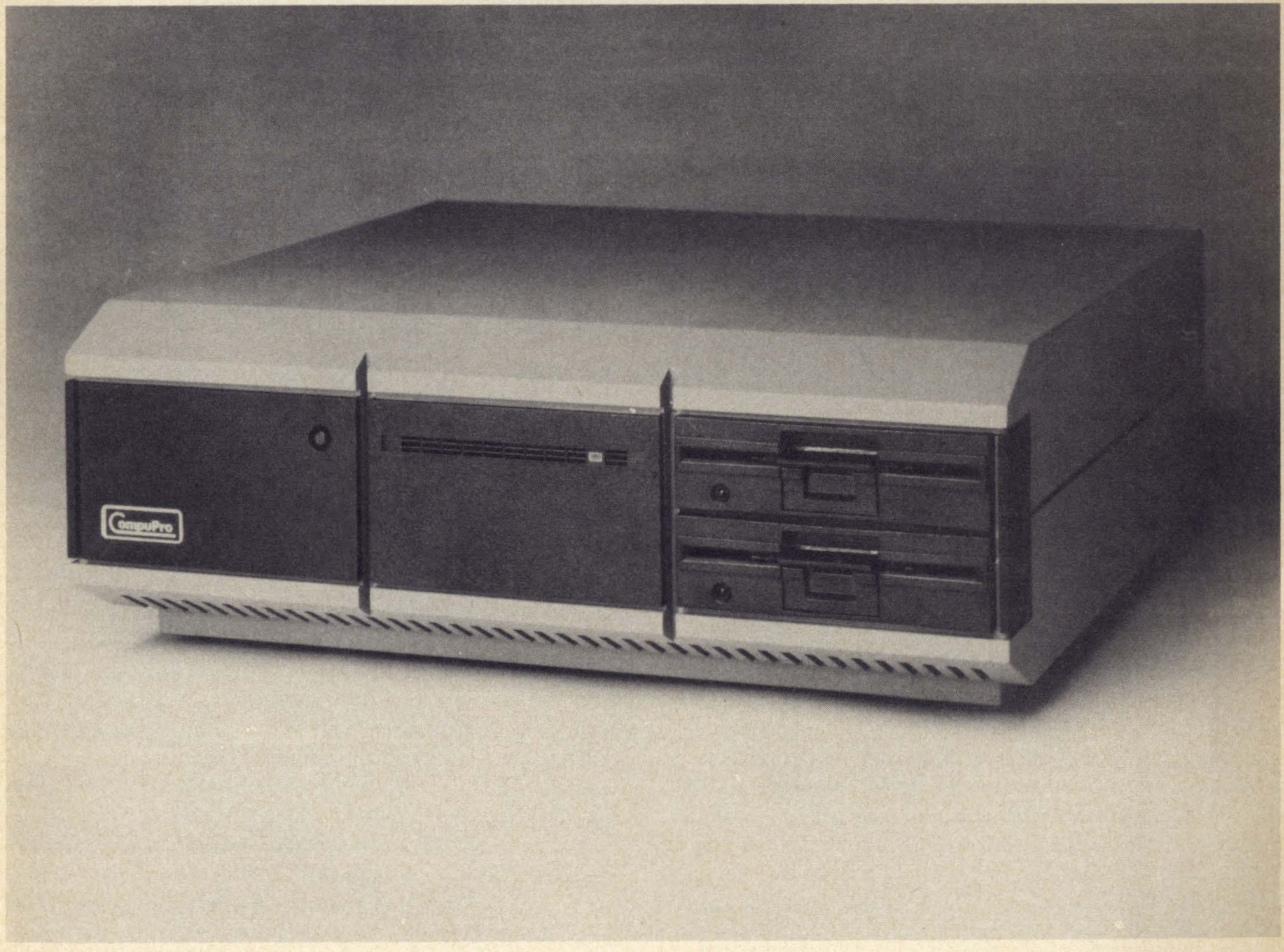
Systems and Networks

CompuPro's Business Computer

CompuPro (Hayward, CA) introduced at the CP/M-83 East show a new four-user multiprocessor microcomputer system, the CompuPro 10, featuring concurrent execution of eight-bit and sixteen bit software and priced at less than $1800 per workstation (total $4999 excluding terminals).

This model is the first CompuPro computer to depart from the IEEE 696 (S-100) orientation. The design provides all system resources to all users at any time, running eight-bit and sixteen-bit applications transparently. A central 8088 processor handles system resources while four Z80B processors handle individual tasks. The performance for all four users approaches that of four single-user systems.

Standard features include an 8MHz 8088 with 768K main memory, seven serial ports (including a modem port), a Centronics printer port, 384K solid state memory disk, and two 5.25-inch



The CompuPro 10 Business Computer runs both eight-bit and sixteen-bit CP/M software concurrently, with an 8088 central processor and four Z80B user processors.

floppy disk drives storing 2 megabytes on 96 tpi disks. In addition there are four eight-bit Z80B user processors, each with its own 64K RAM.

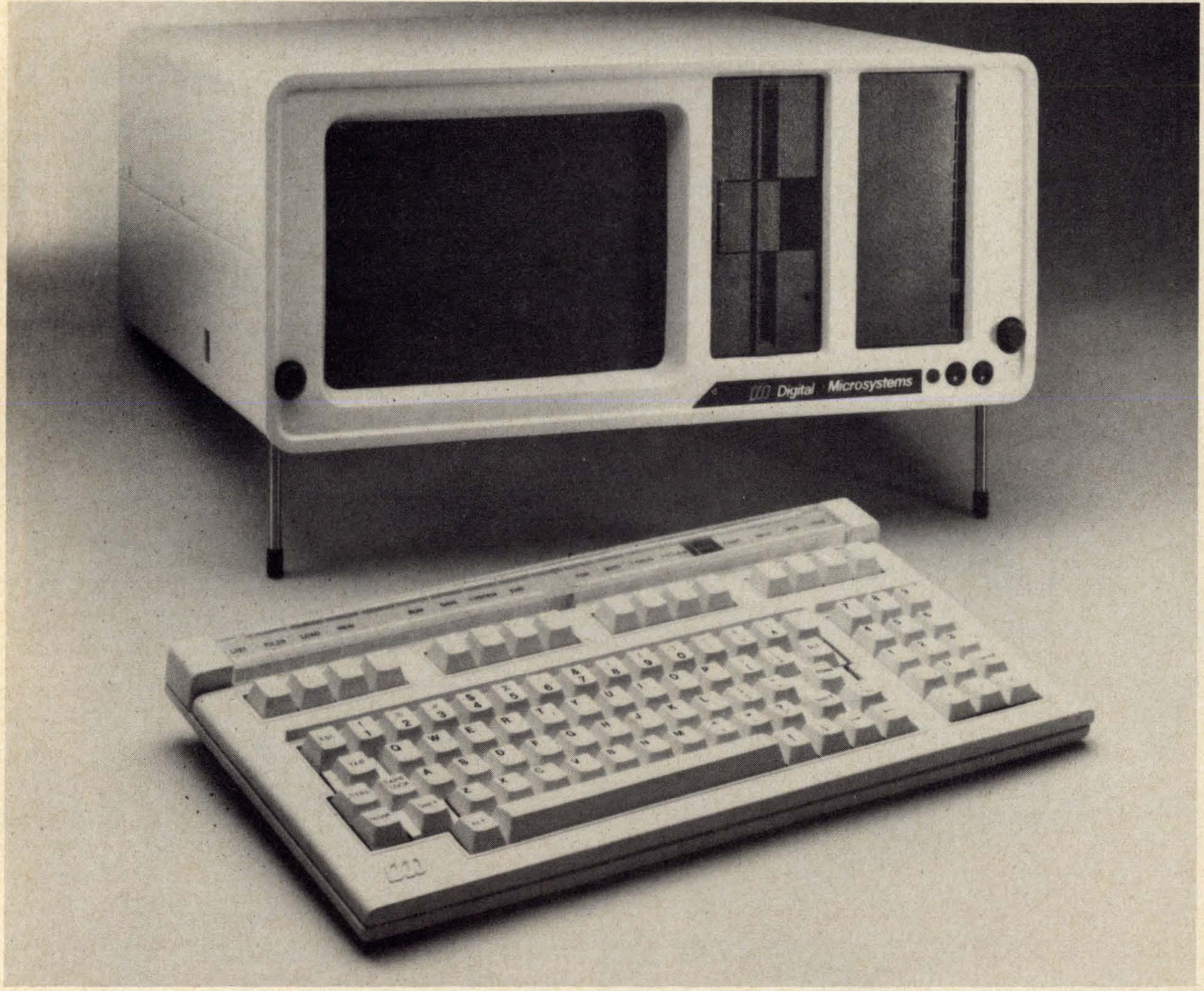
Circle reader service number 51.

Circle reader service number 55. ←

Transportable Radio Shack Model 4P

Radio Shack (division of Tandy Corp.) introduced the Model 4P, a transportable version of the Model 4 that offers all the features of a desktop Model 4, priced at $1799. The unit weighs 26 lbs., measures 16.5 x 13.5 x 9.75 inches, and is small enough to fit in luggage racks on planes.

The Model 4P can run CP/M Plus as well as other Radio Shack operating systems (TRSDOS and LDOS). It has 64K memory expandable to 128K, two 184K double density 5.25-inch floppy disk drives, and a nine-inch 80 x 24 display that can be upgraded to display high resolution 640 x 240 pixel graphics. You can also add an internal direct-connect 300 baud modem.



The DMS-3/501 master station from Digital Microsystems provides floppy and hard disk storage of MSDOS, CP/M-80 and CP/M-86 programs on the HiNet network.

- **Reach an exclusive audience.**

User's Guide readers own/use CP/M or IBM PCDOS systems in their businesses and professions. To get the most from their systems, readers are adding on software, peripherals and accessories. These business and professional users make buying decisions on new microcomputer systems, software, peripherals and accessories for themselves and their associates.

- **Excellent residual pulling power.**

User's Guide is sold in computer stores internationally, even in stores that do not carry other magazines. Why? It has useful content not found in other magazines. Stores carry back issues of *User's Guide* because the content covers major application software in-depth. *User's Guide* puts "hands-on" information at the fingertips of beginners and intermediate users.

- **Low rates and a highly-qualified audience.**

The low rates, combined with the highly-qualified audience of CP/M and PCDOS system owners and users of WordStar, dBASE II, SuperCalc and other popular packages, make *User's Guide* your best advertising buy. As our circulation increases, our rates are also increasing, so act now!

- **Reserve space now for Issue Seven!**

The theme of issue no. 7 (Jan. 1984) is *personal data management*. The space deadline is Dec. 8, 1983. Camera-ready materials deadline is Dec. 15. Call Cheryl Rhodes at 415-851-4836 for current advertising rates, or write: Advertising Sales, User's Guide, PO Box 3050, Stanford, CA 94305.

User's Guide *is the most readable publication in the computer industry. It is the only periodical that provides tutorials and reference documentation in a magazine format for both newcomers and experienced computer users.*

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Advertise in issue 7
User's Guide

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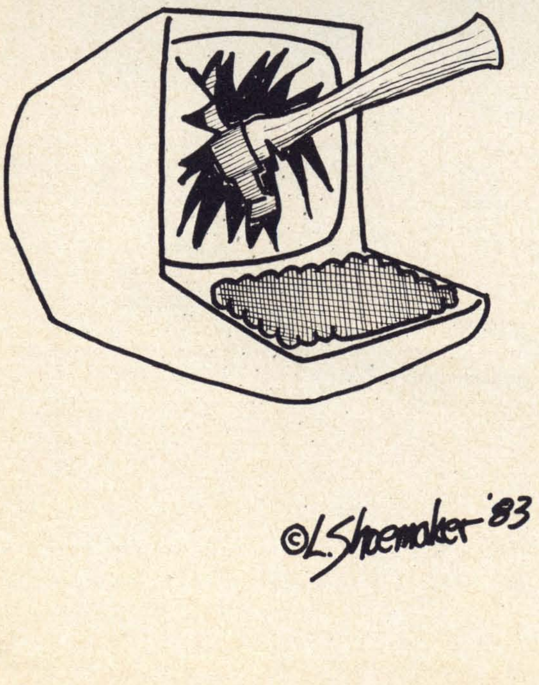

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1. Office use, unaccounted for, spoiled after printing, left over:	5999	5852
2. Returns from news agents:	282	292
G. Total:	19,932	19,732

I certify that the statements made by me above are correct and complete.

Tony Bove
President, TUG Inc.

Low Cost PC Workstation

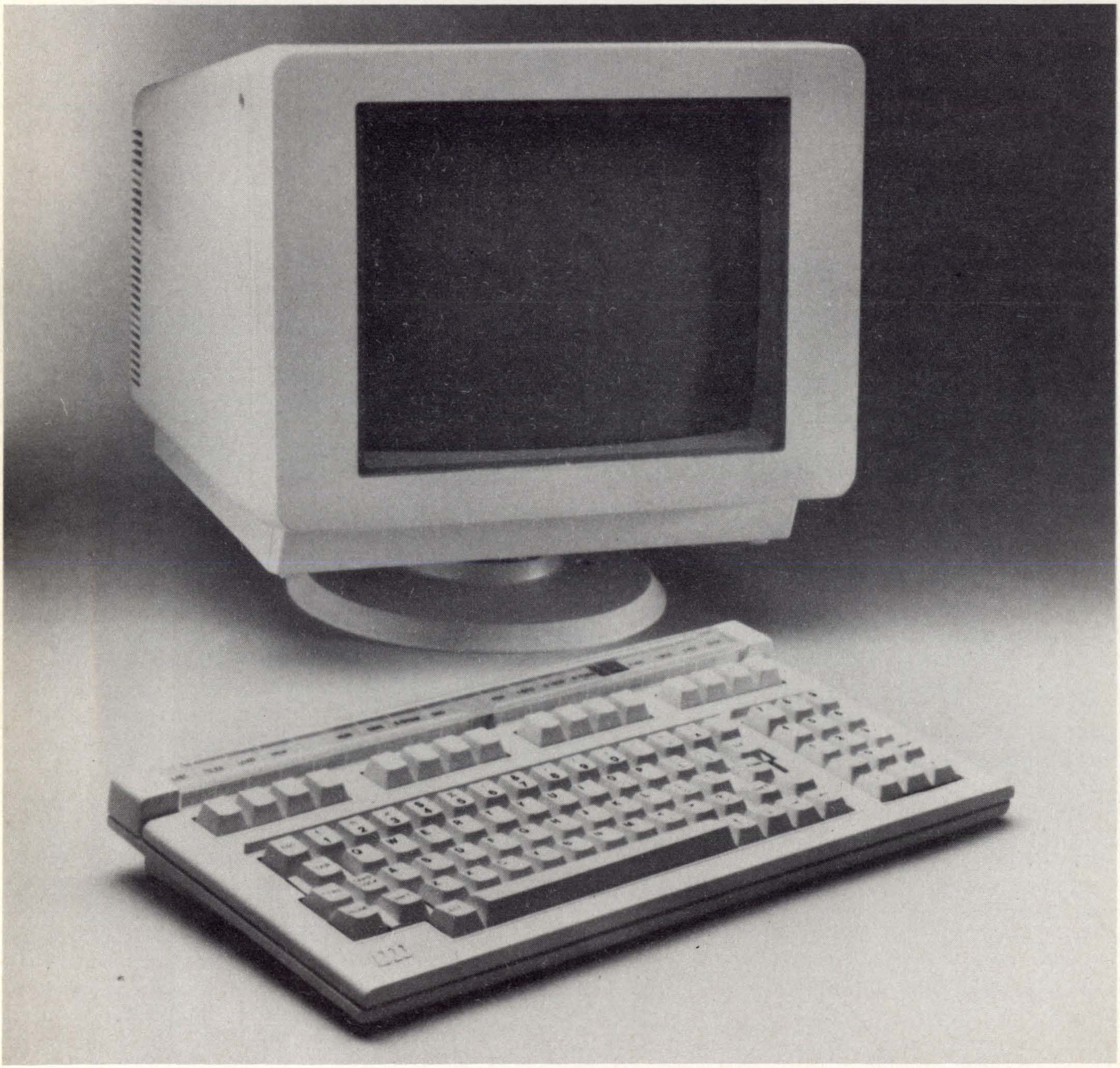
Digital Microsystems (Oakland, CA) announced the lowest-cost IBM PC-compatible workstation on the market. Priced at $1695, the DMS-816 workstation lets users run MSDOS, CP/M® and CP/M-86® programs on the company's HiNet local area network.

Digital Microsystems also announced the DMS-3/501 network master station with floppy disk and hard disk storage of MSDOS and CP/M programs and data. Priced at $6500, only one is necessary to function as a file server in a HiNet configuration.

Compatibility with the IBM PC is achieved by duplicating the functions of the IBM ROM for input/output, monochrome display, and keyboard.

Digital Microsystems also introduced Electronic Mail for HiNet networks. Mail can be sent to any terminal on the 32-station HiNet network, as well as to printers and storage devices.

Company spokespeople are quick to point out that a network with as few as two HiNet/PC workstations would cost less than two stand-alone IBM PC XT systems and have the added capa-



The DMS-816 workstation from Digital Microsystems, which runs MSDOS, CP/M-80 and CP/M-86 programs on the HiNet network.

bility of file sharing and electronic mail. A five-user HiNet/PC network would cost about 35% less than the same network built around the IBM PC (based on list prices).

Circle reader service number 52.

Low Cost Hard Disk Computer

Morrow Designs introduced the MD11 desktop computer at the CP/M 83 East show, with integral 11 megabyte hard disk, CP/M Plus with 128K, full sized terminal and five application programs for $2745. Comparable systems cost $2800 to $5000 and typically have 10 megabytes and less than 128K.

The programs are New Word, LogiCalc®, Correct-It® (spelling), Personal PEARL® data base manager, and the Quest Bookkeeper System. The MD11 terminal features function keys for WordStar® commands.

According to company spokespeople, the MD11 hard disk performs at twice the usual disk-access speed with its CMA (Controlled Memory Access) hardware.

Circle reader service number 54.

Local Area Network For Z-80 Computers

Magnolia Microsystems (Seattle, WA) has extended its MAGNet® local network beyond Heath/Zenith Z89 computers to support all S-100 (IEEE-696) computers (including Zenith's Z100 series computers).

MAGNet allows multiple users to perform a variety of tasks simultaneously, using separate processors, while sharing common resources such as disk files and printers. MAGNet nodes contain a 4MHz Z-80 processor and 256K RAM. The bus architecture allows up to 64 connections using the logical ring "token passing" technique.

MAGNet nodes include file servers ($4999 and up), printer servers ($895) each with a 32K spooling buffer, workstations ($895 and up) and computer interfaces ($695).

Circle reader service number 53.

Computers, systems,

software and peripherals

Peripherals

Ink-Jet Color Printer

Radio Shack (division of Tandy Corp.) announced the CGP-220, a "drop on demand" ink-jet printer that can print seven colors quietly for $699. It prints 2600 dots per second in graphics mode with a resolution of 640 dots per line. The text mode offers 12 cpi at 37 characters per second. Parallel and Color Computer interfaces are built-in.

Circle reader service number 56.

Software

DRI Makes GSX Package Available on PC-DOS and MS-DOS

At the CP/M 83 East show in Boston, Digital Research, Inc. (Pacific Grove, CA) introduced MS-DOS and PC-DOS versions of the Graphics Systems Extension (GSX) software. The GSX software is compatible with industry standards for transmitted videotex graphics. GSX has been available for the CP/M family of systems since early 1983.

GSX extends an operating system to include graphics input/output functions, and make it possible for programs with graphics to be portable from one computer to another. It also extends an operating system's capabilities to handle a wide range of graphics devices such as CRT screens with pointers to color plotters and printers.

User's Guide is planning application notes using GSX software and DRI's graphic applications tools.

Circle reader service number 57.

DRI Packages Business Applications

Digital Research, Inc. (Pacific Grove, CA) introduced its CP/M Applications Library, a set of business applications for the IBM PC with the novel SpeedStart® operating software — an abridged version of CP/M-86 included on the applications disk. Speed-

Start eliminates the need to buy a separate operating system disk, and is included free.

Nine popular programs are offered from this single source: WordStar (MicroPro), SELECT (Select Info. Sys.), SuperCalc2 (Sorcim), MOVE-IT (Woolf), Personal PEARL (Pearlsoft), TARGET (Comshare), MicroPlan and GraphPlan (Chang Labs), and DR Graph (DRI). The software is compatible with CP/M-86 and Concurrent CP/M-86.

Circle reader service number 58.

Molecular Introduces ATOM Software For Office Management

Molecular, which manufactures the Supermicro family of CP/M-compatible multiuser business systems, announced an integrated office management system dubbed ATOM (Application Tools for Office Management).

ATOM combines Molecular's m/WORD (word processing), m/CALC (spreadsheets) and m/MAIL (electronic mail) programs under one set of menus, commands, and help facility. The package is designed to allow third-party software developers to integrate their programs within the management system. ATOM works on a number of popular terminals.

Circle reader service number 59.

Integrated Graphics Package

Chang Labs (San Jose, CA) introduces GraphPlan, a complete graphics-spreadsheet package combining statistical commands, presentation-quality graphics, and sorting capabilities. It is also compatible with MicroPlan spreadsheets.

GraphPlan has built-in formulas and graphics functions such as automatic generation of legends, explodable pie charts, horizontal or vertical line and bar graphs with stacking, and scattergrams. Changes in spreadsheet data automatically changes the graphics, and the user can switch from spreadsheet to graphics or back with one keystroke.

Circle reader service number 60.

CPA Client Write-Up Software

E.F. Haskell & Associates released its Client Write-Up software package that lets you use any word processing program to create management reports, financial statements and even income tax returns for use with client data maintained by this package. The package includes math capabilities on all financial statements and reports. You can compile twelve monthly budgets or one annual budget for each account, and include up to twelve prior year comparative amounts. Reports may be designed to include any accounts for departments or management control areas.

Circle reader service number 61.

Financial Analysis, Forecasting and Budgeting

Business Software (Chatsworth, Australia) announces PLANFIN, a forecasting and budgeting program, and PROFIN, a financial analysis program, which run on CP/M-80, MS-DOS, and PC-DOS. Both programs can further manipulate data prepared by spreadsheet programs such as VisiCalc®, SuperCalc® and MultiPlan®.

PLANFIN and PROFIN are available from Westico, Inc. (Norwalk, CT) and Lifeboat Associates (NY).

Circle reader service number 62.

The Cure For Bad Sectors

At the CP/M-83 East show, COLORADO ONLINE Systems introduced dataCURE®, a program that can reconstruct the original contents of floppy disk sectors that have been damaged, priced at $99. Tests purported have shown that dataCURE can reconstruct data files from a disk that had a nail driven through it.

User's Guide received a version of this program and is planning an article about it.

Circle reader service number 63.

Spreadsheet Templates

Elliam Associates announces spreadsheet templates for VisiCalc, SuperCalc, MultiPlan and PeachCalc users. Construction Job Cost Estimating uses figures from the National Construction Estimator to figure the cost of land, legal fees, plans, permits, site clearance, labor and materials.

The Financial Projections Package is based on actual SBA forms for forecasting sales and producing a complete projection. Included are break-even analysis, cash budget, projected profit/loss, balance sheet statements, ratio analysis, five depreciation tables and formulas for net present value.

The Real Estate Investment Comparisons Package is based on forms from the National Institute of Real Estate Brokers. A single property can be analyzed, compared, summarized and projected over the length of ownership to calculate the true rate of return on a real estate investment.

Home Worksheets is a collection of templates for personal finance management for $39.95; the rest are $59.95 each.

Circle reader service number 64.

Scientific Graphs

BV Engineering (Riverside, CA) announces PLOTPRO, a set of Microsoft BASIC programs for making graphs on any 80 or 132 column printer. PLOTPRO creates linear, semilogarithmic, and full logarithmic plots and will plot multiple functions on the same graph. Forced scaling and autoscaling are supported as well as optional grid lines.

One program (PROTEMP) creates templates of the physical appearance of any graph, specifying the type of scaling, axis labeling, ranges for each axis and other information, which are stored on disk for other graphs.

Another program (PROQUICK) controls plotting and printing of infinite length graphs limited only by paper length. The entire package including manual is $49.95.

Circle reader service number 65.

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Editorial Direction

A commitment to the CP/M family, coupled with articles on IBM PC-DOS and MS-DOS versions of the same software, and tips on transferring files and communicating between the two systems.

© L. Shoemaker '83

"Perhaps THIS will refresh your memory!"

You are a user of a CP/M system, perhaps running WordStar, dBASE II or similar software that is also available for the IBM PC. Your friend or associate has an IBM PC with the same software, and you want to trade data files and other information.

You want to know about connecting to IBM systems, and you already use software that is only now becoming available on the PC.

Or, you are a CP/M system user who seeks to upgrade your system to be PC-DOS compatible, or add a portable computer, or establish a local area network to share system resources with PC-DOS systems.

These are a few answers to the question "why did we expand our coverage to include the IBM PC." We are planning increased coverage (with an increase in editorial pages) to accommodate our readership. Readers want to expand their computer activities and communicate with or use PC-DOS and MS-DOS systems.

With the exception of some computer-specific magazines, most computer and software magazines are vague about which operating systems they support. IBM PC magazines don't rule out coverage of CP/M in their pages. Apple magazines cover CP/M because many Apple II and II/e owners use one of the several CP/M cards available for the machine. Radio Shack and Atari magazines cover the CP/M hardware/software system packages for those magazines.

User's Guide has carved a niche across the marketplace with readers who own IBM PC's, Osbornes, Kaypros, CompuPros, Xerox computers, etc. Here you will find tutorials on programs that operate in both CP/M and PC/MS-DOS, or facilitate communications between the two system families.

Our purpose is to provide training, hands-on techniques, application notes and comparative articles for CP/M users. The products we choose to describe are ones we have studied or used in an application — we are telling you of our results, and providing instructions to do it yourself.

We are editing articles on Accounting Plus, the SBT Accounting package, other accounting programs, financial planning programs, personal management programs such as Mini-Ledger, and all-purpose programs such as T/Maker III.

More data base management systems will be compared: Selector, MicroRim, DataFlex and others, more application notes on dBASE II, and articles on personal management systems using simpler data base programs.

Articles are being prepared on CP/M word processing tools, proportional printing with Perfect Writer, using Spellbinder, Punctuation & Style, and others.

Simple programming tutorials are under consideration (both 8080/Z80 and 8086 versions): Pascal, PL/I, C, CBASIC, CB, MBASIC, Business BASIC, Dr. Logo, and others.

An introduction to PC/MS-DOS (from a CP/M user's viewpoint) is underway, as are complete descriptions of the IBM PC with Concurrent CP/M-86, the CompuPro system 8/16, and other eight-bit and sixteen-bit concurrent or multi-user systems.

Our commitment to the CP/M world is indefatigable (we own or use five different CP/M computers). Our purpose is to provide articles on using CP/M software, and since much of that software has also migrated to the IBM PC, we also provide articles on using the IBM PC version of these programs and how to communicate and transfer data with IBM PC or PC-compatible systems.

As IBM re-defines the marketplace, CP/M users need to communicate with IBM systems, not be isolated from them. All three popular operating systems (CP/M, PC/MS-DOS and CP/M-86) are showing up in sixteen-bit computers, and it is now necessary to know how to use them all.

IBM News

We saw the effect of IBM on the marketplace at the IBM PC Faire in San Francisco, and the CP/M-83 East show in Boston. IBM dominated the entire floor at the first show, and was noticeably absent from the second. However, software companies at both shows seem to have a foot in each marketplace. Conflicting rumors about the Peanut were everywhere. Now, of course, the PCjr (Peanut) has been announced, and its specifications are published in Sunday supplements of major newspapers and in nearly every consumer electronics publication.

The PCjr (Peanut) is useful as a home computer, but not useful enough to run a small business or profession (except perhaps freelance writing). It does not run PC-DOS 1.1 or 2.0 — only 2.1 (now available for the PC and PC XT). Games dominate the list of programs, which includes "enhanced" versions of Easywriter 1.15, Time Manager 1.05, and PFS:File and Report 1.05.

Dr. Logo will be the featured programming environment, thanks to Digital Research. The PCjr may dominate the home computer market, and we may get to use one eventually and report on its use as a productivity tool for professionals or businesses.

The two computers to watch in 1984 are from IBM: the Personal Computer XT/370, and the PC 3270. The PC XT/370 is the first personal computer to run IBM 370 mainframe software — specifically, the VM/CMS (Conversational Monitor System), a popular system of commercial applications running on IBM mainframes.

The **PC XT/370** computer is basically an IBM PC/XT with 256K memory plus three boards: an extra 512K memory board, a 3277-2 emulator, and a board containing three MPUs (multi-processor units): a customized Motorola 68000 that directly executes mainframe 370 instructions, a standard 68000 for emulating 45 additional instructions, and an Intel 808 floating point co-processor.

This is a personal computer! The price ranges from $7000 to $9000, and an upgrade kit for PC/XT owners is priced at $3800. The operating system (VM/PC) is an extra $1000.

Perhaps more important to the personal computer market is the PC 3270 computer. This computer runs a concurrent operating system called 3270-PC Control Program (is this Concurrent CP/M-86 compatible?), and can display up to seven windows of concurrently-running application programs on a high resolution eight-color screen. It also runs PC-DOS 2.0 software and provides a 3270 terminal emulator to link to both IBM mainframe computers and IBM PCs.

The **PC 3270** Model 6 sports a 10 megabyte hard disk, two dual-sided floppy disks, and slots for 64K boards to expand up to 320K internal memory. The price starts at $9000. The Model 2 has no hard disk, 256K memory, and one dual-sided floppy drive for about $5000. It can also operate with a mouse, and it appears to be IBM's answer to the Apple Lisa.

An answer to Apple's MacIntosh has not yet arrived on the scene. The PCjr (aka Peanut) has arrived, and its specifications can be found in your local newspaper, or in any IBM PC-oriented magazine.

Other Machines

The DEC Rainbow was featured at the CP/M-83 show, and we are planning a system overview for the next issue. Concurrent CP/M-86 runs smoothly on the DEC Rainbow, and it can run both CP/M-80 and CP/M-86 programs. Until this Boston show, the DEC Rainbow seemed to be gaining no ground in the market. Recently DEC announced its super warranty plan, which is expected to increase sales.

We will soon evaluate the CompuPro multiuser system in detail, and describe the multiuser environment of its CP/M 8/16 system. We will also cover Concurrent CP/M-86, available for that machine as well as others. CompuPro has a reputation for manufacturing excellent equipment, and we look forward to using the system as a testbed for new software.

Continued from page 66

Osborne 1) for my Osborne. Does CP/M 3.0 have to be especially configured for the Osborne 1 (other than the disk format) or can I simply purchase CP/M 3.0 in an Osborne format and run it that way? I have not seen an Osborne 1 version of CP/M 3.0 advertised and question whether Osborne Computer Corporation itself will come out with Osborne 1 version.

J. David Aiken, ESQ
Lincoln, NE

Osborne hit bankruptcy court, so we doubt they will come out with such a product. CP/M 3.0, also known as CP/M Plus, must be configured for your system, be it Osborne 1 or whatever. We have not seen a version of CP/M 3.0 for the Osborne 1, and the version for the Osborne Executive (which runs CP/M Plus as its native system) does not run in the Osborne 1. Concurrent CP/M-86 requires a sixteen-bit processor not currently available for the Osborne 1.

Editors:

Here's my renewal. Keep up the good work. Yours is the only publication this old man can relate to and understand.

Perhaps you can help me solve another problem. By following your instructions on page 20 of the first issue I'm able to combine biographies into one file:

```
PIP⏎
*B:AAA=AARON,ABSLO,ACREES⏎
```

What I'd like to be able to do is transfer all the files on one disk to a new file without having to type the names individually. Is it possible? If so, can you give me step by step instructions?

I'm using WordStar on an upgraded Osborne I. I'd also like to know if there's a limit to the number of files that can be concentrated into one file.

Thanks for your assistance.

Allen E. Roberts
Highland Springs, VI

Others may offer better suggestions, but we suggest you use LU (Library Utility) which is available in the public domain software libraries wherever Osborne user groups meet. LU lets you put a set of files "under one roof" and one name, saving directory entries as well as disk space. The individual files retain their names and can be extracted individually, copied collectively, displayed individually, etc. We are planning an LU tutorial for the not-too-distant future.

Editors:

I was very pleased to see the two articles in issue #3. Since the local Heathkit store has installed a bulletin board with dozens, if not hundreds, of useful programs and my system is an H89, I immediately tried to see what I could get from it —- in short, nothing. So I trotted down to the store, and with some effort on their part, got copies of XMODEM60.COM, and XMODEM60.HEX. But, after returning home with high expectations, I found that I couldn't run XMODEM-60.COM and XMODEM60.HEX wouldn't LOAD. So, for practical purposes, I'm still isolated.

Never would I expect you to attempt to solve my specific problem but maybe an article outlining some of the potential problems might be useful to the many of us who are at the kind-of-intermediate level.

William P. Simpson
Los Angeles, CA

We recommend that you use ModemH89, a version of Modem4 found in earlier public domain libraries. Xmodem is designed for answering callers and giving them system access; it is not ideal for general purpose communications. The ideal setup is a version of Modem7 or Modem4, with Xmodem if you need it for calling your own system from another, or for setting up a BBS.

Editors:

I have enjoyed your magazine and will be renewing it for another year under separate cover. CP/M has disillusioned me for the past year. Here is my story. I purchased a Centra CP/M for my North Star Horizon in Jan. 83, being the tax season was on me I didn't get down to CP/M until after the season and found the disk wouldn't work. Got another one because the drives' instructions did not work on the first one. Tried using the second copy of CP/M and never could get it to load a program — PIP etc. worked OK but no tax or worksheet program would boot up — I always got a BAD LOAD. I recently sent it back to source for them to check it out. The CP/M programs I have are useless for now. Comments?

W.A. Fauve, Sr.
Baton Rouge, LA

Anyone out there have a suggestion? We hope this horror story is not typical. We don't have North Star computers, but there are lots of satisfied North Star CP/M users, although the North Star DOS is itself an excellent system.

Editors:

I've been enjoying your magazine, and was particularly interested in reading about the TVI 950 and WordStar (although I did notice that your keyboard photo was of a 925). I use WordStar and the 925. I also have the

Perhaps you can give me some advice. I have had very little success with the 925 Operator's Manual. It might as well be written in Greek. Is there any way that I can get any more information about how to use what I am sure are many, many fine attributes of the 925? After the first few pages of the Manual I get lost. A great many of the keys are useless to me except that some of them work under the TV1000 for their stated purpose or some other purpose. For example the 7 keys to the right of the function keys, PRINT, FUNCT, HOME and CLEAR SPACE, just to name 11 of them. And of course, none of the cursor keys work except with WordStar.

Martin A Rooney
Ventura, CA

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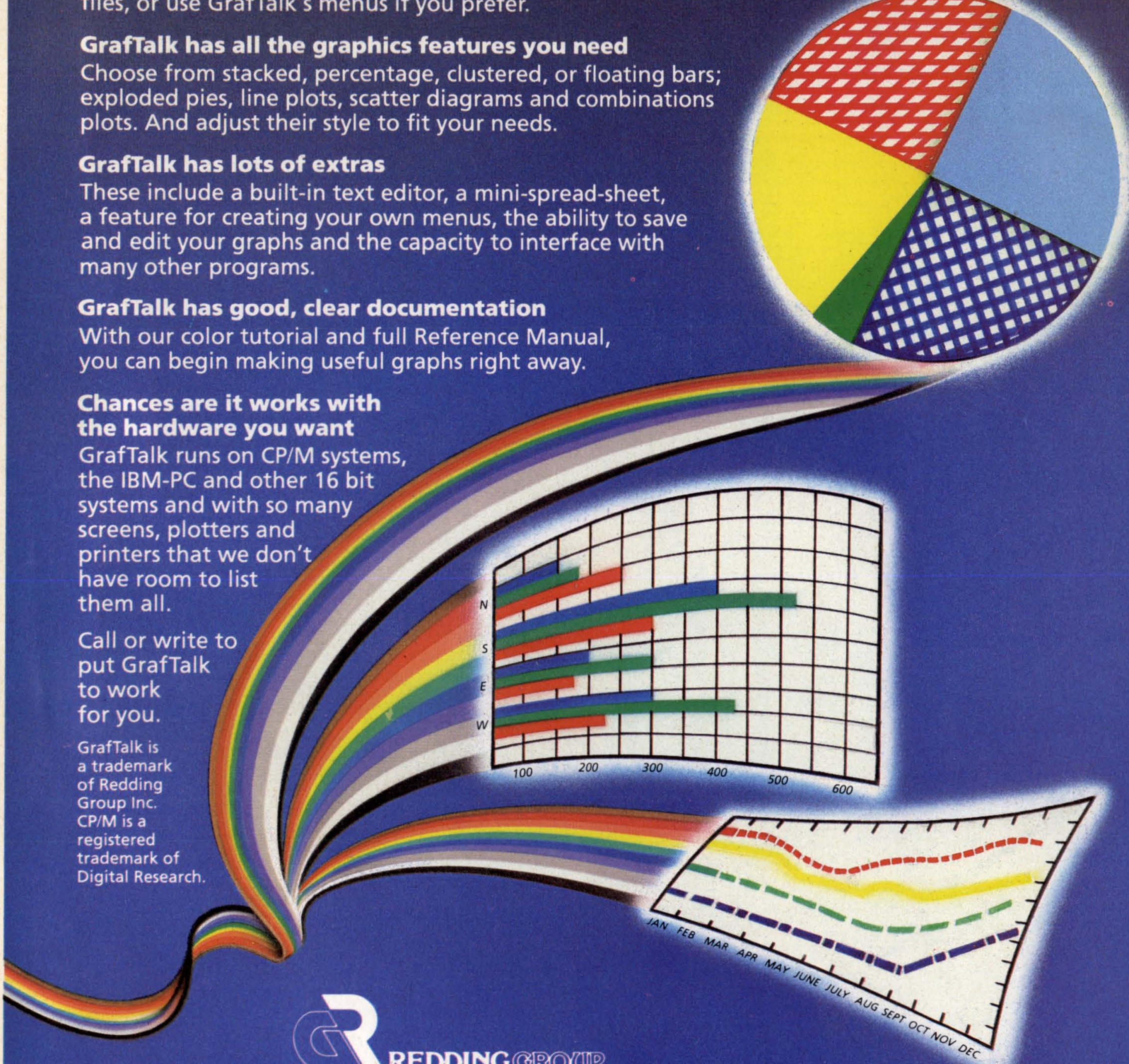

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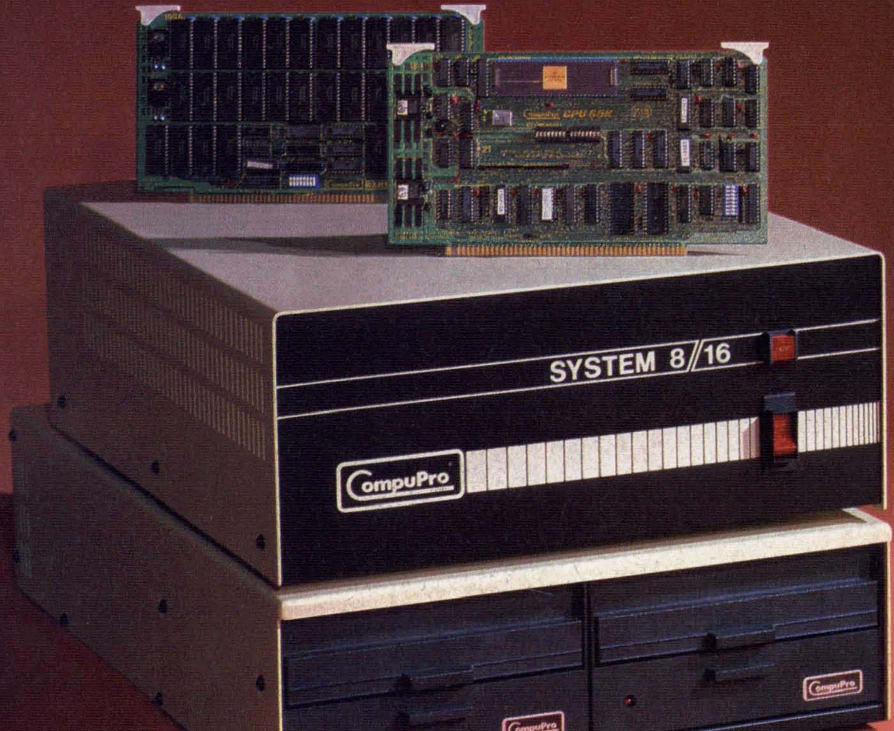

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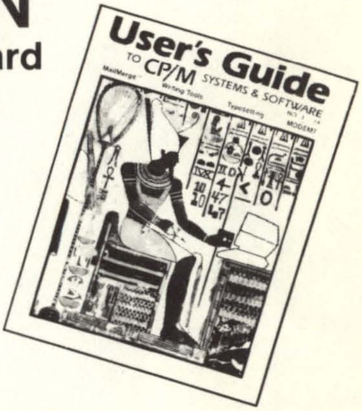

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Please complete:

1. Classify your experience with computers: Novice ☐ Intermediate ☐ Advanced ☐

2. Which computer to you use?

☐ Osborne
☐ IBM PC
☐ Apple
☐ Heath/Zenith
☐ TeleVideo
☐ Radio Shack
☐ Kaypro
☐ CompuPro
☐ Morrow
☐ Xerox
☐ S-100
☐ DEC
☐ Sanyo
☐ ________

3. Do you have: ☐ Printer ☐ Modem ☐ Hard disk ☐ ________

4. Which application programs?

☐ Word processing ________
☐ Data base mgmt. ________
☐ Finance/accounting ________
☐ Program development ________
☐ Communications ________
☐ Stat/scientific ________
☐ Games ________
☐ other ________

5. Where do you use your computer? ☐ Small Business ☐ Large Business ☐ Profession ☐ Home ☐ other:

Name ________ Age ________ Sex ________
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UG 6

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☐ Communications ________
☐ Stat/scientific ________
☐ Games ________
☐ other ________

5. Where do you use your computer? ☐ Small Business ☐ Large Business ☐ Profession ☐ Home ☐ other:

Name ________ Age ________ Sex ________
Occupation ________ Company ________ Title ________
Address ________ City, State, Zip ________

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